SOUTHERN MEDICAL JOURNAL

JOURNAL OF THE SOUTHERN MEDICAL ASSOCIATION

PUBLISHED MONTHLY BY THE SOUTHERN MEDICAL ASSOCIATION AT BIRMINGHAM, ALA.

Vol. XXIV OCTOBER 1931 Number 10

WOUNDS AND THEIR TREATMENT*

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According to type, wounds may be divided into the following varieties: (1) incised; (2) contused; (3) lacerated; (4) punctured; (5) gunshot; (6) poisoned. Incised wounds are made by a sharp instrument and are longer than they are deep, the best example being a razor slash. A contused wound is a "bruised" wound, generally produced by a dull object with or without heavy weight and at times not breaking the skin. Lacerated wounds are torn wounds, resulting from injury by a semi-sharp agent and often accompanied by contusion. A punctured wound is deeper than it is long, presenting potentially the most dangerous form of traumatism on account of its deep penetration. Gunshot wounds, including all those produced by any kind of firearms, constitute a special variety of punctured wounds, associated with contusion and laceration. Poisoned wounds are also of the punctured class, caused now chiefly by the bites of dogs, snakes and other venomous animals, by toxic bullets and shells, and formerly encountered most vividly in the poisoned arrow heads of the Indians.

Considering these six varieties of wounds as a whole, it may be noted that they naturally fall into two divisions of three each. The first three, incised, contused and lacerated, are more or less related, and the last three, punctured, gunshot and poisoned, are of similar character. With the first trio only are we concerned here, since they are the types of wounds usually falling to the lot of the railway surgeon. His duties call him almost exclusively to the first-aid management of recent wounds which are brought about by cuts, contusions or crushes. In many instances his so-called first-aid treatment consists in secondary attention to injured parts already tampered with. In all cases, however, he must consider such wounds as virtually infected and remember the well known warning that the fate of the injured lies largely in the hands of the one who applies the first dressing.

The fixed principles of aseptic surgery include these maxims: no unsterilized object is clean; normal healthy tissues contain no bacteria; wounds in such tissues tend to heal of themselves; strong germicides are injurious to the tissues and retard healing. If one were able to disinfect rails and car wheels and cleanse the skin covering the victim's injured area, and then have sterile gauze applied at once to the wound, a result approaching ideal aseptic surgery might be attained. But, since none of these conditions is possible, it remains for the surgeon to proceed upon the assumption that every wound is guilty of infection, having regard for the principles of asepsis while he is practising the art of antisepsis. If the surgery of the World War proved nothing else, it demonstrated that the tenets of Lister still hold good, that we must combat infection in wounds in order that they may be prepared for healing. In other words, actual bacteria are to be destroyed, inhibited or removed by some means before the wound can be brought to the point of considering aseptic measures. How best to accomplish this result is the question to be decided.

The average recent wound coming first to the railway surgeon has not had time to develop suppuration. If it is a surface injury, or even if, though deep, it is wide open and its areas accessible, one might apply an external dressing with or without an antiseptic solution and wait for a subsequent dressing before attempting closure of the wound. It might seem proper also to cleanse the interior of the wound with some solution, mild or potent, and follow the same course. Very often the temptation is great to do a thorough disinfection of the

*Read in Section on Railway Surgery, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

wound, especially when it is extensive and undermining, using powerful germicides, and then to suture the wound, providing what may be considered adequate drainage. Each of these methods will present themselves to the surgeon for his judgment. Case after case may be managed after either fashion and come through with a successful result. Much depends on the kind of infection present and this is almost impossible of determination before it develops. No matter what the infectious process may prove to be, it should be kept in mind that any antiseptic sufficiently strong to kill the bacteria will also be deadly to the tissue cells. In the presence of pus, later appearing, the use of germicidal agents is justified, when guided by reason and discontinued when the suppuration is controlled. These remarks may appear to be trite, or even useless, but experience suggests that they are not altogether out of place.

The practical management of wounds involves an understanding of the simple and familiar doctrines just rehearsed. Above all, the most important thing to know is what not to do, and the chief offense would be the introduction into a wound of any contamination from without. If it is desired to cleanse or irrigate a wound, mild antiseptics, such as normal salt solution, boric acid in saturated aqueous solution, or some of the chlorinated group solutions may be employed. It makes small difference which of these is used, provided the program once begun be continued. Following first dressings the value of Wright's solution cannot be overestimated. It is not employed to reach the recesses of the wound, but is to be soaked on gauze and applied upon the outside and kept wet. It is truly the drainage solution. Used along with Bier's hyperemia in wounds of the extremities its efficacy is enhanced.

The general tendency at the present time is against irrigation of recent wounds unless they contain foreign material, clots, pieces of bone, and so on. Wiping out with cotton swabs soaked in any of the solutions mentioned may suffice at all events. A common custom has been to apply freely to all parts of a fresh wound tincture of iodine, mercurochrome, or other concentrated chemical agents. This practice is mentioned here only to condemn it. Whatever may be said for its continuance, no scientific reason can be offered to prove its value, but many grounds might be suggested to show its harm. To superficial areas for sealing without dressing the application of these substances is not objectionable. One of the best is the bismuth-violet preparation, especially effective against the staphylococcus. All of these agents may be used abundantly in already suppurating wounds either by application or injection by syringe, but always with the mental reservation that more bad than good will come if the applications be too prolonged or too frequently repeated.

There is by no means a unanimity of opinion upon the question of using strong antiseptics on wounds. In fact, quite recently a controversy has been going on between German surgeons concerning the results of treating wounds with or without germicides.

Veraart began by saying that "the concept of wound infection has in our day only a historical meaning;" that "wound infection is a thing of the past." Sas[1] replied by pointing out that he had found virulent germs in wounds which had already been treated with mercuric chloride and tincture of iodine.

In answer to Sas, Veraart and Drenth,[2] with seven years' experience in a mine employing over 3,000 laborers, raised the question: "How may one be assured of an aseptic course in accidental wounds?" They report that they have not lost "even so much as a single phalanx of one finger as a result of infection," and that this remarkable record is "due to the germicidal effect of 5 per cent solution of tincture of iodine." These authors assert that industrial physicians who do not use so strong an antiseptic find at least 10 per cent of infections in wounds, while their own incidence is but 1 per cent. They are especially opposed to excision of the wounded area on the ground that in the process of freshening the edges, bacteria are carried into the raw wound tissues and so induce severe infection. Furthermore, they point out that it is unreasonable to recognize the germicidal power of tincture of iodine outside the body and to consider it entirely of no effect within the body. Chemical antisepsis, according to these authors, will take care of inflammation and suppuration in accidental wounds.

A study by Marcuse[3] deals with the treatment of infected wounds with concentrated salt solution. His procedure in 240 cases was as follows: the pus focus was opened and the wound covered with a wet bandage; over this was placed a layer of cotton. In cases of deep pus a rubber tube was inserted for a period of one or two days; otherwise there was no tamponade. A 25 per cent solution of magnesium sulphate was used as a means of inducing the casting off of necrotic tissue and cleansing the wound. This was followed by an application of a 10 per cent solution of sodium chloride to encourage the growth of granulation tissue. Epithelialization of the wound occurred as usual. Secondary suture of the wound was possible to a very large extent. Marcuse concludes that treatment of infected wounds with high percentage solution of common salt with the proper procedure encourages the healing process and shortens the period of recovery.

Many of us can testify to good results from apparently opposite modes of management. A large number of wounds never actually become infected if no treatment whatever were given beyond covering them with a sterile dressing. When pyogenic bacteria are present the fight is on: if the tissue cells win, resolution takes place; if the germs win, suppuration occurs. Cellular resistance is as important as destruction of bacteria, while damage to the tissue is more serious than failure to put to death all the micro-organisms. The application of drastic antiseptics, like tincture of iodine, to the recesses of fresh wounds, may not injure the tissues in many instances, and such substances undoubtedly are germicidal in their action; but numbers of wounds heal cleanly in spite of these applications and not on account of them. And surely the comparison of the action of iodine on the more delicate tissues of a recent wound to its use on the tougher skin cannot be carried too far.

On the other hand, too conservative measures, a let-alone policy, or the omission of needed correctives, will not accomplish the desired result in certain cases. Personal experience suggests that choice of method rests upon the type of wound, its duration and the conditions when first observed. Obviously the discussion of Veraart relates to the early management and that of Marcuse to the later treatment of wounds already infected. Our work bears sustaining testimony to the value of 10 per cent salt solution both at the first dressing and after infection has begun either with or without the magnesium sulphate. Superior to both is the Wright's solution which adds sodium citrate to the sodium chloride.

It cannot be too strongly stressed that the fingers must not enter the wound cavity or even touch the surface, unless the hand be encased in a sterile glove, and not then unless the parts first be disinfected. Most wounds which afterward suppurate have been infected in this manner. A mere reference to this furnishes its own elemental warning. Tight suturing of any wound not made under aseptic precautions, as a rule, cannot fail to be disappointing. If sutures are applied loosely, when needed to bring the parts together, and a way provided for the escape of discharges, the desired cosmetic result may be obtained at the same time that the wound is guarded against deep infection.

Especial attention is called to the value of pressure in the treatment of wounds. Plastic surgeons have long recognized that properly applied pressure plays an effective part in the healing of their wounds. If they had to choose between perfect asepsis with dead spaces under their flaps and imperfect asepsis without the dead spaces, they would prefer the latter. This alternative represents no surrender of ideal technic, but the realization of a principle in the conduct and repair of wounds. Healing by first intention, the ultimate aim of all good surgery, depends first, of course, upon freedom from bacterial contamination, but it is aided secondarily by coaptation and continuity. Collections of exudate or clots between the layers of a wound may undo all the careful precautions and turn the tide toward infection which otherwise might be resisted by the tissue cells. If this principle holds good in operative incisions, for a stronger reason it should apply to inflicted wounds which on their face are potentially infected. When a wound can be confidently closed without drainage, firm pressure over the whole area with a thick gauze dressing held by short adhesive straps will prevent oozing and promote repair. In the event of drainage, the pressure should be applied in the same manner over the closed area, but not over the drain. Thus, the wound is encouraged to discharge its product toward the drainage opening, while its recesses are brought together. *Figs. 1* and *2* demonstrate the pres-

Fig. 1
The inside dressing, applied with short straps. (By courtesy of American Journal of Surgery.)

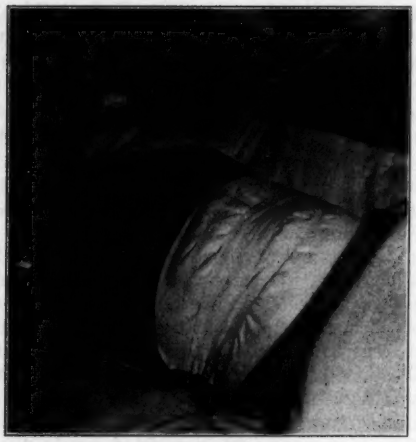

Fig. 2
"Watermelon slice," outer dressing. (By courtesy of American Journal of Surgery.)

sure dressing as used in all our operative wounds and many accidental wounds for the past three years with most satisfactory results.

After all, the management of wounds centers largely around the personal equation. Arriving at the same end, we deploy along different routes with changing conceptions. Experience is a great teacher, but her pupils are prone to drop into the *post hoc ergo propter hoc* habit. All of us have our pet methods and our favorite remedies. If we but pay heed to certain definite principles and exert our honest judgment in each case, neither overdoing nor underdoing, our wounded patients will be restored quickly, surely and pleasantly.

The matter may be summed up in the words of Sir Hector Cameron, one of Lord Lister's disciples:

"Let it suffice to say that we who practise surgery today do so with a confidence and a sense of safety to which the surgeons of . . . . years ago were entire strangers, and this is an outcome of the application of scientific truths. The very fact . . . . makes it as necessary now that we shall constantly keep before our minds what those scientific truths demand of us in the treatment of each individual case. If we maintain such a mental attitude, we need not strive for, or indeed expect, absolute uniformity of practice. The more clearly we recognize the principles which are the common guides of all of us, the more we shall agree in that which is essential, and be free to differ as we please in carrying out the various details of our every day procedures."

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DISCUSSION (*Abstract*)

Dr. J. S. Turberville, Century, Fla.—I wish especially to speak of the first person who dresses the wounds. In years of experience in saw mill work, particularly planer mill work, where splinters are stuck in hands almost daily, I have rarely seen an infection unless some untrained person has tried to remove the splinter. The reason is obvious. The lumber from which the splinter comes is kiln dried and therefore sterile.

Those who work about the shops and other places about the mill where the hands become greasy and soiled have slightly more infection. However, if these wounds are not meddled with, infections are rare. In the course of a year, where wounds are dressed almost daily, there are not more than two or three infections, where the wounds are treated first in the office.

The routine treatment of these wounds is for those of the planer mill, cleansing with alcohol, painting with an acetone alcohol mercurochrome solution, and removal of the splinter. For those where the hands are greasy or soiled, a piece of cotton saturated with alcohol is laid on the wound and gasoline used to clean around the wound, always wiping away from the wound. The rest of the treatment is the same as that mentioned above for those of the planer mill. Most of the wounds are dressed by a young lady who has been taught the proper technic.

I imagine mine and railroad practice would have a greater per cent of infection on account of the soiling of their hands with human excreta. I would urge physicians who are with railroads, which have safety meetings, to go to these. They will be invited to talk, and there they can do their best work in urging unskilled persons not to interfere with wounds.

The application of iodine to a wound is all right provided the one applying it knows how. The application of strong iodine to a wound which is then covered is bad practice because one often gets an iodine dermitits and from the inflamed skin the wound may become infected.

Dr. John E. Cannady, Charleston, West Va.—I am convinced that you can disinfect a wound that is potentially infected by the use of tincture of iodine .

I would not think of advocating the use of iodine in a wound that appears to be clean, but if the wound is potentially infected we can, at times at least, eliminate or head off sepsis by the local application of iodine.

Again I would like to endorse what Dr. Royster has said in regard to suturing the tissues loosely. It is often possible to get union of an infected wound by using loosely tied interrupted sutures. A certain amount of swelling takes place and there is some discharge, but if the interrupted sutures have been loosely tied drainage can take place between them. I am quite sure that in most cases the condition of the wound can be made worse by packing or by the prolonged use of drainage tubes or drains.

I thoroughly endorse the principle of non-irrigation of infected wounds. Any infected wound will heal much more rapidly without irrigation than with it.

Dr. Robert Carothers, Cincinnati, Ohio.—I agree with everything the essayist has said. If there is anything that can make me uneasy it is to see a lot of iodine put into an open wound, even though the wound is presumably infected.

If you want to make an infection, you want to keep a wound running. Take an illustration like this: compare two cases in which there are two Steinmann pins through a bone. Pull one pin out and leave it wide open. You will never have any trouble. Pull the other one out and shoot a little antiseptic in and the sinus will run for days and days.

I never would put a dressing on an infected wound. Let the air get to it. Air will do more than iodine or anything else that I know for an infected wound. A clean wound can be protected for a while, but in a few days it can be left open to advantage.

Dr. E. N. Fair, Heavener, Okla.—We are in a law suit at the present time on account of an accident. I wish to add this: do not forget the tetanus serum.

Dr. James R. Garner, Atlanta, Ga.—Much has been said regarding the danger of iodine, but nothing regarding the danger from mercurochrome, which has become a very popular antiseptic. I wish to call attention to the fact that it is a dangerous antiseptic in railroad surgery, particularly in wounds about the face, because of the fact that it will occasionally result in a permanent tattoo.

I know of two cases where a red scar was tattooed permanently on the person by the application of mercurochrome. For this reason I think we should be very cautious in its use.

Dr. Royster (closing).—I want to stress one point which Dr. Turberville mentioned, that we should wipe away from the wound and not toward it when we are cleansing the outside surface. We give a simple soap and water cleansing first, and keep all things out of the wound until the surrounding area is prepared in the ordinary way.

I am afraid I shall have to plead guilty to Dr. Carothers' impeachment. I have used tincture of iodine in open, fresh wounds, and I have seen them heal without trouble, but the question is, whether they would not have healed just the same without it. I grant that the tincture of iodine is a germicide, will kill micro-organisms, but it is also unfriendly to tissue cells, and perhaps there are other agents that are not so destructive to the cells that will accomplish the same result.

Many wounds I leave open without dressing, especially wounds on the face where less scarring is to be obtained. The dressing I exhibited was only the transference from the clean, operative room of a technic that might be used in the wounds we are considering, that are closed, and even in the event of drainage the dressing is helpful and not a hindrance.

Dr. Wainwright, of Scranton, Pennsylvania, said that considering the low incidence of tetanus in most wounds, he had practically given up the use of antitetanic serum.

The tattoo mark on the face is a very interesting thing to me, and I recall now that in one case I have observed the same phenomenon. There are some people who like to be tattooed, so if we find one of these individuals we may do it with iodine instead of India ink on the wrist or other places where they are accustomed to having it done.

A PLAN OF FLAP CUTTING IN AMPUTATION OF FEMALE BREAST, DESIGNED FOR PURPOSE OF PRESERVING FREE RANGE OF ARM MOTION AND AVOIDING SKIN-GRAFTING*

By Geo. H. Noble, M.D., D.C.L.,
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In outlining flaps for removal of the female breast there are three things of importance to bear in mind, ie., removal of sufficient cutaneous surface to prevent regional recurrence; shaping of flaps with a view of covering denuded surface, and of preserving free range of arm motion.

If the breast is pendulant, there may be little concern relative to the first of these propositions, for amputation may be made close to the chest wall with assurance of ample skin removal. The distance from the nipple to the ribs being greater, a larger area of skin is removed than when the mammary gland is sessile.

When the breast is sessile and not fixed to the ribs, placing the tips of the fingers above and below the breast and tucking the skin behind it, or between it and the ribs, the points where the finger-tips depress the skin will mark the place where the circular incision should be made.

The incision here presented is a modification of the Halsted incision, but has some advantages over it. It is described as follows:

After making the upper half of the circular incision, defining the limitations of the tissue to be removed, the second or subclavicular incision (*Fig. 1, A.B.*) is made from a point near the border of the sternum, following a line running nearly parallel with and 1 inch below the clavicle, extending outward, cutting the apex of an angle formed by the arm and the chest wall and terminating on the posterior border of the armpit.

The lower incision (*Fig. 1, A.G.*) begins at

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*Received for publication April 15, 1931.
*Read before the Southern Surgical Association, Lexington, Kentucky, December, 1930.

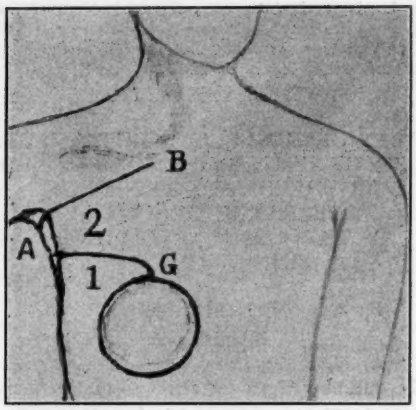

Fig. 1

a point on the upper part of the circular incision on a line vertical to the nipple and extends upward and outward, cutting across the armpit to its posterior border at a point 1½ inches below the distal end of the subscapular incision. The outer ends of these two incisions are then joined by cutting along the posterior border of the armpit (*Fig. 1, A.*).

The lower flap is denoted as the mammary flap; the other one is the subclavicular flap.

It will be observed that the mammary flap is shorter than when cut in the usual way. Its tip does not extend beyond the nipple line, so that some skin surface adjacent to the upper and inner quadrant of the breast is conserved for the purpose of increasing the width of the base and circulation of blood in the subclavicular flap, and it also adds to the amount of skin to cover the raw surface when the latter flap is displaced downward (*Fig. 3*).

The skin on the side of the thorax is loosely attached and, after removal of the pectoralis major and minor muscles, permits sliding of the mammary flap mesad (when displaced upward), until its tip may reach a point near the inner end of the clavicle.

The long or clavicular flap, cut as described, removes sufficient skin from the armpit to compensate for the difficulty usually experienced in covering the raw surface from which the breast has been removed.

After the flaps have been dissected free, reflected, and the lower half of circular incision made, the breast is removed from above downward, clearing the axilla thoroughly back to the scapula and laterally to the border of latissimus dorsi muscle. The wound is then closed by transposing the flaps as follows:

The mammary flap (*Fig. 2*) is carried upward and placed in the angle made by the clavicular incision and sutured to the skin margin below the clavicle. The subclavicular flap is displaced downward, turned over the raw surface from which the breast has been removed and its end turned upon itself so that when the operation is completed the line of sutures look like *Fig. 2* turned upside down (*Fig. 2*).

Should there be tension on the flap, which rarely occurs, undercutting of the skin on the lower half of circular incision will sufficiently mobilize the tissue to ease the strain on the sutures.

When the area of skin removed is not extensive, the subclavicular flap may be made to terminate at the anterior margin of the armpit* without losing the advantages of the long flap. It also secures greater usefulness of the arm, for it eliminates the tendency of the distal end of the transverse line of sutures to turn downward on the posterior margin of the axilla.

Limitation of arm motion following the usual operations is due to contraction of the scar which runs nearly vertically between the arm and the chest wall, sometimes causing a

*The two incisions outlining this flap should unite on anterior border of the axilla, making an acute angle at its distal end.

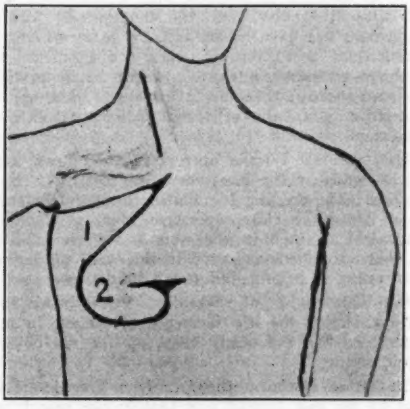

Fig. 2

Fig. 3 Fig. 4 Fig. 5 Fig. 6

Fig. 3. Showing elevation of arm three weeks after operation.
Fig. 4. Showing elevation of arm two weeks after operation.
Fig. 5. Triple flap for a very large tumor. (Elevation of arm three years after operation.)
Fig. 6. Elevation of arm twenty-three years after operation.

webbing in this locality. This difficulty is avoided by directing the scar, or line of sutures, transversely, high up in the armpit (*Figs. 2* and *3*), being careful not to allow the distal end of this line of sutures to turn downward on the posterior margin of the armpit. Contraction of the scar does not interfere with arm motion for the reason that its pull is not exerted on the arm, as shown by the illustrations demonstrating the fact that these cases can place their hands on the opposite side of the head without flexing the neck. This feature, I wish to emphasize, for the reason that my experience with this method for approximately thirty years has proven it to be thoroughly dependable in covering the raw surface and preserving free range of arm motion. There is much less scarring than occurs in skin-grafting operations.

Transplantation of hair follicles to the anterior chest wall appears not to be objectionable to patients, but for cosmetic effects the follicles can be destroyed by subsequent roentgen ray treatment.

I may briefly mention, in closing this paper, that the web following operations done by the old methods may be removed and the usefulness of the arm restored by making the incisions anterior and posterior to the web, dissecting the scar tissue from the chest wall and slipping it up on the arm, then cutting another flap and turning it transversely high up across the armpit (*Fig. 4*). The raw surface is closed by sliding the skin transversely and suturing it in the vertical line.

FRACTURE OF THE NECK OF THE FEMUR IN THE AGED: THE OVERSLUNG TRACTION SADDLE A SUBSTITUTE FOR PLASTER SPICA*

By Earl D. McBride, M.D., F.A.C.S.,
Oklahoma City, Okla.

The literature is abounding with a multiplicity of ideas and diversity of apparatus for fractures of the femur. From the days of the dextrous gymnasium surgeons and the machines of the Alexandrian school down to the present period, men have continued to exercise their ingenuity upon this subject; yet, there are difficulties and problems unsettled to the extent that the spirit of invention ever prevails.

Fractures of the neck of the femur in the aged are not alone a mechanical problem. The welfare of a senile constitution is at stake and there is a most difficult nursing problem as well as a surgical one.

The sudden reverse of circumstances which

*Read in Section on Bone and Joint Surgery, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

brings undeserved suffering and prolonged confinement to those of fading years, creates a situation which deserves sympathetic as well as scientific effort to relieve and restore. It is not the fracture that brings these individuals to the grave: it is the apathy and inertia toward seeking to apply scientific principles with due respect to the surgical risk involved.

The old adage "treat the patient, then the fracture" can be applied without sacrifice of thorough reduction of the fragments. The patient should be treated by treating the fracture, but not by employing methods which create an undue hazard and sacrifice physiological stability.

There are four general forms of treatment practised today:

(1) The sandbag, or no treatment method.

(2) The complete reduction and plastic spica treatment of Whitman.

(3) Open reduction.

(4) The compromise method of traction in some form of common use.

There is nothing to be said in favor of the "no treatment" sand bag procedure and it is generally to be condemned. Unfortunately, it is still practised by older physicians who cannot be convinced of the value of surgical reduction, and by those who lack facilities. The result of such neglect is a bed of suffering, a high mortality and perhaps a life long invalidism.

The Whitman method is now generally accepted, scientifically, as a sound surgical procedure and is not to be criticised in this respect. Anatomical restoration of the fragments is accomplished and a high percentage of cases result in bony union. Applied as a routine treatment, however, there are certain cases in which it will prove disastrous. We see cases with a high blood pressure, myocardial insufficiency or uremic possibilities, in which an anesthetic is certain to jeopardize the physiological reserve. In others, the shock of manipulation and physical strain during application of the spica will unbalance the resistive powers of the patient and result in severe complications, even insanity, or death.

Rigid confinement of the pelvis, abdomen and spine by the cast is often not well withstood and gives rise to gastric disturbance, bladder irritation and decubitus. If the patient becomes incontinent, the nursing problem is unusually burdensome. The aged are prone to osteoarthritic changes, and prolonged rigid fixation stiffens the knee and spine so that pain and discomfort during convalescence are undeservedly severe.

The same criticism may be applied to the open reduction method. In many cases it has its advantages, but routinely it cannot be applied.

Traction is what I choose to term "compromise treatment." It is used more commonly in a very inefficient manner. The Ruth-Maxwell method is surgically efficient when given proper attention, but has many disadvantages. The nursing problem is difficult. To turn the mattress, adjust the bed clothes or use the bed pan, the patient must be moved and lifted, and thus, the fragments and position of the limb are often disturbed. Counter traction is difficult to maintain in the ordinary methods of applying traction.

OVERHEAD TRACTION SADDLE FRAME

About five years ago, the writer began to experiment with the Bradford frame and the Jones abduction splint in an effort to devise a method of firm fixation which would be as efficient in this respect as a plaster spica and in addition permit the application of traction. The object was to obtain efficient splinting for maintaining the position of abduction, extension and internal rotation, without resorting to the rigid confinement of the spica.

The idea of putting a "hump" in the Bradford frame so that the lower half extended over the limbs, with the upper half under the trunk, made possible the efficiency of the traction saddle frame which was finally evolved.

It made possible suspension of the legs and traction without cumbersome splinting and had the following advantages:

(1) The fracture is reduced anatomically and thoroughly, without anesthetic or without any physical strain upon the constitution of the patient.

(2) Fixation in abduction, internal rotation and extension is constant and undisturbed by nursing care or transportation.

(3) Traction is added to fixation.

(4) The nursing problem is greatly facilitated.

(5) The sitting posture is possible.

(6) The frame may be used as a stretcher in transporting the patient.

(7) There is no obstruction by the frame to the taking of an x-ray. The patient may be

transferred to the x-ray without disturbing his position.

(8) The knee does not get stiff.

(9) The hip joint retains much of its normal range of motion.

The apparatus consists of two sections forming a rectangular frame of No. ¾ x 3/16 angle iron. The upper section contains an adjustable headrest and a canvas sheet for support of the torso. The lower section is attached to the upper section at a level of the hips by two upright bars and is suspended out over the legs. Attached to this section are two adjustable angle iron arms, from which the legs are suspended in muslin hammocks or by straps attached to the pulley rope. These arms turn downward at the end of the frame and support the pulley through which traction is applied.

Counteraction is secured by two stirrups of padded duraluminum strips attached by webbing straps to the cross bar above the hips and buckled to the canvas sheet on which lies the trunk. These fit comfortably under each thigh at the groin and resist traction in a manner similar to the ring on a Thomas splint.

MECHANICAL REDUCTION

We often see the Thomas splint or simple Buck extension applied to a fully extended leg which has not been manipulated in the hope that reduction will be accomplished by means of the pulley. The neck of the femur fracture cannot be reduced by traction in the position of extension or abduction. This position is necessary, however, after reduction in order to maintain reduction. To reduce the fragments, it is necessary to relax the muscle pull by flexing the hip and knee to the extent of a few degrees. Traction in this position, together with internal rotation, will bring the fragments into anatomical apposition. Abduction will then force the neck of the femur into the correct angle and cause a tension on the capsule which compresses the fragments together and maintains apposition.

In the overslung traction saddle frame, the method of pull on the leg is similar to that described by Russell of Australia.*

The pull is upward and forward on the knee as well as a straight pull on the leg as a whole. This is accomplished by the rope's being attached to the knee strap and extending upward over a pulley above the knee, then to a triple set of pulleys at the foot. The strap on the knee is adjusted so that the pull is from its outer aspect, thus rotating the leg inward. The uninjured leg is also placed in traction in the position of abduction.

The leg is not manipulated and the position of election is gradually attained by frequent adjustment of the leg bar and pulleys. Within three or four days the fragments become reduced and the position of abduction, internal rotation and extension is attained.

At the end of three to four weeks the traction may be lessened on the knee by using a separate weight. The weight to the foot is continued sufficient to maintain firm fixation. After the third week the knee may receive a little active motion.

The time of immobilization does not differ from the cast treatment. A walking caliper is applied at the end of ten or twelve weeks.

DISCUSSION (*Abstract*)

Dr. G. W. Leadbetter, Washington, D. C.—I think we all thoroughly agree with Dr. Whitman's precepts that the object of treating fractures of the femur is first to save life; secondly, to secure reduction; and, thirdly, to secure function.

This, to me, is a very ingenious piece of apparatus and I agree with Dr. McBride that there are a very few cases for which this probably would be the ideal treatment. However, we have continued to use closed manipulation, reduction and a plaster cast somewhat modified from the original Whitman cast.

We insist from the very outset that deep respiratory exercises be started and that they be carried out in detail three or four times a day.

We cut the cast so that the patient may recline at 45 degrees at least and exercise the abdominal muscles

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*British Medical Journal, 2:632, Oct. 22, 1921.

in order to prevent the almost inevitable occurrence of intestinal and bladder difficulties.

Closed reduction can be accomplished without shock and without trauma to the patient. With an experience of about thirty-five cases in the last year and one-half by this modification, we have been able to reduce anatomically all of these fractures of the neck of the femur.

Reduction and a flat x-ray plate of the hip are not sufficient evidence of a complete reduction. A good stereoscopic view is necessary. We find many times that the normal line of the neck and the interior rim of the pelvis look the same in a flat plate. Under a stereoscopic view we find that the distal portion of the neck may be anteverted slightly so that we have apparent reduction.

We have done many of these reductions under morphine with no pain. It is very simple and not traumatizing or shocking. The plaster is applied as tightly as possible from the hip down with no padding. The body portion is applied down to and including the pelvis, using very long, fairly wide strips of felt which go all the way around the pelvis and under the groin of the injured side. Two plaster slabs, one anterior and one posterior, are molded carefully to the skin of the leg, fastened in place with gauze bandage and a little plaster is rubbed into the bandage.

Since using this method of application, we have had no difficulty with elevation of the patient in bed, no difficulty in turning the patient, no pain and no trouble with decubital ulcers. I believe this fixation is essentially absolute.

I should like to disagree with Dr. McBride on one point, namely: that in the Whitman method (abduction and internal rotation), the Y ligament is tight. We have experimented on many cadavers and found that in abduction it is tight. When one starts internal rotation, however, the relaxation of the ligament is complete, even with a very few degrees of rotation.

We have used as a clinical test of reduction the resting of the heel of the foot on the open palm, and we find that whenever that foot stays in a slightly internally rotated position, with no tendency to revert itself, the reduction has always been complete. We have found also that when it did tend to rotate outward and had to be forced in internal rotation, reduction was never complete.

I think this is extremely ingenious and that it might be applied on a few selected cases. It seems rather complicated, but it may be the solution for the bad type of case, although the present manipulation and plaster will still continue to be used by most of us as the best method.

Dr. W. B. Owen, Louisville, Ky.—Naturally, one must use the method with which he is familiar. If he has no method, he must familiarize himself with some accepted method.

I was brought up with the belief, and I still have the conviction, that Whitman's principles for the ordinary fracture of the neck of the femur are sound. His principles, as you know, are three: abduction, complete extension, and internal rotation. Fixation in that position for a sufficient length of time, in the average surgeon's hands, does more good and less harm than any method of treatment universally employed over a quarter of a century. It is possible if the plaster is applied properly to turn the patient on the side, on the back, and on the face, without disturbing the broken fragments. It is also possible without making any disturbance in the fracture to bivalve the cast from above the knee to the toes. When the patient is turned on the face remove the posterior section, flex the knee and move the foot and ankle every day. I think that is quite an advantage.

All of us know how many patients, particularly elderly patients, have suffered with stiffness of the knee which has been caused by prolonged fixation.

In central fractures of the neck of the femur of patients over sixty treated by Whitman's method one gets at least 65 to 70 per cent of bony union. There are a great many cases that do not unite by Whitman's method or any other method.

There is a certain number of cases that die, but one gives them the best chance to live by using this method. By turning them frequently without disturbing the fracture one is very apt to prevent hypostatic pneumonia and other complications.

Several years ago Dr. Pirtle and I reported a patient 106 years of age treated by Whitman's principles. She got bony union, lived about six months after she left the hospital and probably senility had something to do with her death.

I saw Dr. Whitman this summer and he reported the youngest fracture of the neck of the femur, and very kindly gave me credit for the oldest one.

Dr. McBride (closing).—I realize that an apparatus of this kind on first sight may seem very impractical. However, we cannot all afford fracture beds and we need something better than the Bradford frame.

Although I have featured this overslung traction saddle frame as a method of treating fractures of the neck of the femur, I have been trying more than anything to find something more practical and useful in cases in which we ordinarily use the Bradford frame. I recommend it as a hospital appliance. In some city hospitals a number of old people with fractures are brought in. The lifting and turning problem is great and, perhaps, a frame of this kind could be available and used in a manner similar to a fracture bed. It has been my desire to present something to you that has given me a great deal of satisfaction in its use and I hope you may be able to suggest some improvements.

These old people sometimes just will not die; we must nurse them and we must treat them, so that any apparatus the general hospital may secure that is more practical for the physician and nurse and more comfortable to the individual ought at least to be given a trial.

SYPHILIS OF THE STOMACH: A REPORT OF SEVEN CASES*

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The frequency with which syphilis of the stomach occurs is a subject of considerable dispute. In fact, Singer and Dyas,[1] after thorough investigation, state that there is no case reported in which the presence of syphilis has been proved by a satisfactory demonstration of the *Treponema pallidum*. These authors also state that typical gummata of the stomach are very rare. However, the infrequency with which *Treponema pallidum* can be demonstrated in any of the lesions of tertiary syphilis is well known, and, accord ng to McCallum,[2] the gumma is the most typical but not the most common lesion of this state of the disease. Therefore, Singer and Dyas believe, as do we, that these criteria are too severe and are unnecessary for the diagnosis of syphilis of the stomach.

There are, however, other criteria which are reasonably sufficient for such a diagnosis, although they have not been satisfactorily formulated nor generally accepted. The criteria most often referred to are those of Carman and Eusterman.[3] Careful study of our limited number of cases leads us to believe that we are justified in setting forth the following points as necessary for a reasonably conclusive diagnosis of syphilis of the stomach:

(1) Evidence of organic disease of the stomach, which on x-ray examination is indistinguishable from carcinoma.

(2) A comparatively young individual.

(3) The presence of other evidences of syphilis.

(4) A qualified improvement under antisyphilitic treatment.

(5) In cases operated upon, demonstration of tissue changes compatible with syphilis.

By qualified improvement under antisyphilitic treatment we mean a general gain in weight and strength, and often a decrease in all symptoms. However, there is one group which, paradoxical as it may seem, becomes worse under treatment. We refer to those in whom the lesion is near the pylorus. In them, treatment frequently results in cicatricial contraction with pyloric obstruction which subsequently requires surgical intervention. This is clearly demonstrated in some of our case reports.

Even on the basis of these criteria the incidence of syphilis of the stomach has never been accurately determined. Many patients with various types of syphilis have gastrointestinal complaints which are usually accepted as being due to the general systemic manifestations of the disease, just as many tuberculous patients have similar symptoms. Stokes,[4] in an investigation of 200 cases of syphilis, whose chief complaints were referable to the gastrointestinal tract, found organic involvement of the stomach in 4 per cent. He does not state, however, how many of these patients were subjected to a roentgenologic study. Merrill,[5] in an analysis of 18,000 x-ray examinations of the gastrointestinal tract, found ten definite cases of syphilis of the stomach and four cases which he considered suggestive. Autopsy statistics show that it is a rare finding after death. Symmers,[6] in a review of 314 autopsies of subjects with acquired syphilis, found only one case. Other similar studies show more or less agreement with these results. Singer and Meyer,[7] however, consider that the present conception of the incidence of syphilis of the stomach is analogous to the former opinions of morbid anatomists concerning the incidence of duodenal ulcers. They make the logical assumption that estimates of the incidence based on autopsy statistics are too low because, first, the lesions themselves regress and may not be evident at the time of death, and second, that some of the cases diagnosed at autopsy as benign pyloric hypertrophy, linitis plastica and hour glass stomach may be of syphilitic origin. The question of the incidence of syphilis of the stomach will be settled only by thorough clinical and roentgenological study of a large series of syphilitic patients with gastrointestinal complaints. In our perusal of the literature we have been unable to find such a report.

It is, therefore, apparent that cases in which the reasonable criteria outlined above have been met are not sufficiently numerous for the conclusion that syphilis of the stomach is a common condition. Among approximately 3,000 cases of syphilis studied at the Vanderbilt University Hospital, we have observed seven cases in which

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*Read in Section on Gastroenterology, Southern Medical Association, Twenty-Third Annual Meeting, Miami, Florida, November 19-22, 1929.

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our criteria have been met, and we believe that these well established cases are rare enough to warrant this report. In addition, in two of our cases, operation made tissue examination possible and there are certain features of the results of treatment which make these cases of further interest. The data are summarized in *Table I.*

TABLE I

SUMMARY OF CLINICAL DATA IN SEVEN CASES OF SYPHILIS OF THE STOMACH

Number of cases	7	
Average age	30.8	years
Youngest	22	"
Oldest	46	"
Sex		
Number of males	5	
Number of females	2	
Race		
Number of white	1	
Number of colored	6	
Duration of symptoms		
Shortest	3	weeks
Longest	1	year
Average	19	weeks
Average weight loss	30	pounds
Vomiting		
Present in	6	
Absent in	1	
(Symptoms only 3 weeks)		
Pain present in	7	
General glandular enlargement	3	
Wassermann reaction		
Blood positive	7	
Spinal fluid		
Examined	3	
Not examined	4	
Negative	3	
X-Ray		
Pre-pyloric lesions	4	
Mid-stomach	3	
Interpreted as possible carcinoma	7	
Treatment		
Medical and surgical	2	
Medical alone	5	
Tissue examinations	2	
Change compatible with syphilis	2	
Effect of treatment		
Obstruction requiring surgical intervention before treatment	1	
Obstruction in spite of treatment	2	
Operation performed	1	
Operation expected to be necessary later	2	
Persistence of filling defect	6	
Gain in weight		
Least, 2.5 lbs. observed 1 week		
Greatest, 42.0 lbs. observed more than 1 year		
Symptomatic cure	5	
Improvement	2	
Failure	0	

Case 1.—H. B., a colored male, aged 30, entered the hospital two years ago complaining of shortness of breath and pain in the abdomen and chest of seven weeks' duration. The onset of the pain was sudden, occurring under the left shoulder and radiating down the left chest into the upper abdomen. He complained also of soreness in the stomach. He had lost 6.8 kilograms. The pain in the upper abdomen was worse after eating and during the night. The knees were stiff on arising in the morning, but this stiffness disappeared with use. There was a history of a syphilitic infection. The remainder of the history was unessential.

Examination.—There was resistance all over the abdomen, most marked in the upper right quadrant and suggesting a matted condition inside the abdomen rather than a muscle rigidity. There were no objective changes in the extremities except a slight grating in the knee joint on motion. Otherwise the physical examination was negative. The blood Wassermann and Kahn tests were positive. The spinal fluid was normal. A smear of the prostatic secretion showed gonococci. It was felt at this time that the patient had a general syphilitic infection, gonorrheal prostatitis, chronic arthritis and myositis.

Course.—Antisyphilitic treatment was instituted, his tonsils were removed, and massage of the prostate given twice a week. The patient improved under this treatment and rest in bed. After a three weeks' stay in the hospital he was discharged greatly improved. He received, after discharge, nine intravenous injections of neoarsphenamine and four intramuscular injections of mercury, after which he failed to appear for further treatment. He returned to the clinic about a year later complaining of pain in his chest and stomach. The Kahn test was positive. Antisyphilitic treatment was again given, ending in May, 1928. In July, he returned complaining of being sick at his stomach and vomiting his meals practically every day. There was considerable nausea, a very poor appetite, and general soreness in his abdomen. He was given a light diet with alkalies and instructed to rest as much as possible. He improved, but when antisyphilitic treatment was resumed in the latter part of July he began to have the same gastric disturbances. An x-ray examination of the gastrointestinal tract was made at this time (*Fig. 1*) and showed a constant deformity of the pyloric end of the stomach, suggesting carcinoma or possibly an old duodenal ulcer. There was evidence of a partial obstruction in the second portion of the duodenum, "probably due to the tumor of the stomach." At this time he was admitted to the hospital, where the physical examination was practically the same as on the previous admission. There were no palpable masses nor free fluid in the abdomen. There was some tenderness with muscle spasm in both upper quadrants. There was no distention; no visible peristalsis. It was felt that he had pyloric obstruction secondary to an ulcer, neoplasm or a syphilitic scar. Several days later a definite, firm mass which moved on respiration was found in the midline. Gastric analysis at this time showed free hydrochloric acid, 31, total acidity, 52. There was no blood in the gastric contents.

He was transferred to the surgical service and a laparotomy performed. On opening the abdomen, it was noted that the peritoneal surfaces were more red than normal. There was a great number of enlarged lymph nodes along both curvatures of the stomach and a few irregular white patches on the inferior surface of the liver, but no nodules were felt in the latter. On the anterior wall of the stomach, about 4 cm. from the pylorus, was a large contracted scar on the peritoneal surface. On palpation of the stomach a mass was felt which occupied the entire pyloric end. A definite ulcer crater could be palpated on the posterior wall of the stomach near the lesser curvature. The duodenum was dilated and red. It was decided that a resection of the pyloric end of the stomach was advisable. This was done and the stumps of the stomach and duodenum were turned in and a gastroenterostomy performed in the first portion of the jejunum and the posterior wall of the stump of the stomach. The patient's postoperative course was not particularly se-

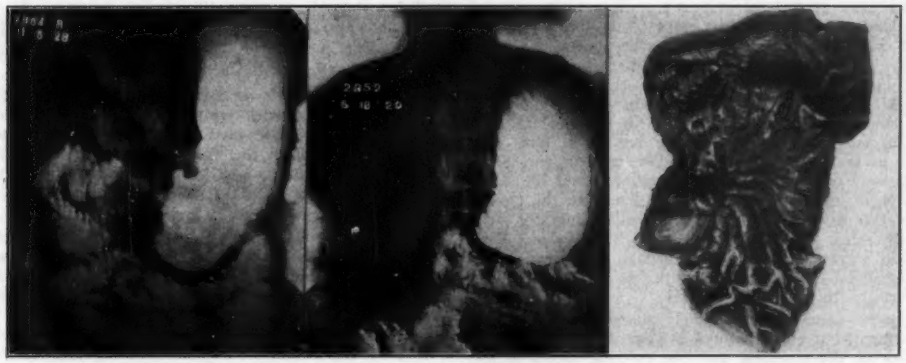

Fig. 1
Case 1. Before operation.

Fig. 2
Case 1. After operation.

Fig. 3
Case 1. Photograph of a drawing of the gross specimen.

vere and he was discharged from the hospital on November 25. Before leaving, another x-ray examination of the gastrointestinal tract was made, which showed the barium meal passing from the stomach quite rapidly.

The pathological lesion in the portion of the stomach removed presented an extremely unusual picture. There was an irregular ulcerative process which completely encircled the pyloric end of the stomach. On the posterior wall near the lesser curvature and the pylorus there was a deep crater-like ulcer approximately 3 cm. in diameter. Its edges were not undermined and the base was firm. There were irregular linear ulcers extending from this crater on the anterior and posterior walls all the way to the greater curvature. The stomach wall in areas contained considerable scar tissue and the mucosa was markedly puckered. The whole process was sharply limited by the beginning of the duodenal mucosa. This, coupled with the size and position of the ulcer, was held in favor of malignancy. Microscopically the process was seen to be entirely inflammatory. The margin and base of the ulcer were covered with an exudate of fibrin and leucocytes. There was dense infiltration of round cells and connective tissue. Further away from the ulcer there were collections of round cells, epithelioid cells and round giant cells, a formation resembling a tubercle. In the center of one of these there was a foreign body, either a deposit of calcium or a foreign particle included when the part may have been the base of the ulcer. Sections of the tissue stained with an acid fast stain and by the Levaditi method failed to show tubercle bacilli or *Treponema pallidum*. X-ray examination on March 15, 1929 (*Fig. 2*) showed a properly functioning gastrojejunostomy. At that time he had gained 35 pounds and had no gastrointestinal symptoms.

Case 2.—A white seamstress, aged 46, came into the hospital complaining of abdominal pain, vomiting, dizziness, eructations and loss of weight. She dated the onset of her present illness to January, 1927, seven months before admission, when she had a dizzy spell, lasting for one day. She then began to complain of eructations of gas associated with epigastric pain of a cramping character. This pain was not characteristic in type or time. She also began losing weight. She continued her work for four months when her symptoms became more severe. Food made the pain worse, and she began to vomit about ten minutes after eating. The vomiting was not associated with severe nausea and the vomitus contained no blood. Her weight in January was 48.1 kilograms and when she was first seen in the out-patient department she weighed 33.6 kilograms. Until three years before she had had "sick headaches and vomiting for many years." She had had a small, round, hard, painless ulcer on the vulva 20 years before and had never been pregnant. The history was otherwise unimportant. Examination revealed a poorly developed and nour-

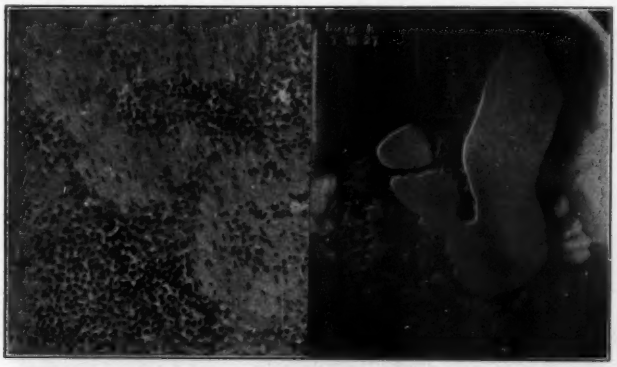

Fig. 4
Case 1. Photomicrograph of a section through the lesion shown in Fig. 3.

Fig. 5
Case 2. On admission. Examination after operation showed a normal functioning gastroenterostomy.

ished white woman of forty-six. The right side of the abdomen was slightly more full than the left, and in the right epigastrium there was a small, rather superficial mass (finger-like) which crossed the aorta. The examination was otherwise essentially normal. The laboratory examination showed a secondary anemia, and an absence of free hydrochloric acid in the stomach contents. Many red blood cells were seen in the latter. The blood Wassermann and Kahn tests were positive. On x-ray examination of the stomach there was seen a large filling defect on the greater curvature near the pyloric end, corresponding to a mass in this area. The stomach was freely movable. Peristaltic waves failed to pass through the area of the deformity. The appearance of the defect suggested carcinoma of the stomach (*Fig. 5*).

Course.—She was immediately placed on antisyphilitic treatment, but on account of her age, the type of filling defect of the stomach, and the palpable mass, it was decided that an exploratory laparotomy was advisable. The following is an abstract of the operative note: "The duodenum is much larger than normal and adherent to the gall-bladder so that the gall-bladder was entirely obscured between the duodenum and the liver. These adhesions were separated, after which the gall-bladder appeared normal. The entire distal half of the stomach appeared abnormal. It was irregularly contracted and distinctly more red than the cardiac portion of the stomach. On palpation, there was a thickening along the greater curvature, apparently extending on to both the anterior and posterior walls. The thickening was not particularly hard. The distal half of the stomach was removed and a posterior gastroenterostomy was done."

Surgical Pathology Note.—"The specimen is a portion of the stomach, including the pylorus. It shows a very large irregular ulcer, the longest diameter being along the greater curvature of the stomach. The diameter measures approximately 10 cm. There are several irregular ulcerated areas extending on both the anterior and posterior walls of the stomach. The ulcer is rather superficial, but the entire thickness of the mucosa is lost. Some of the margins of the ulcer are perpendicular and sharply defined; other margins are sloping and ill defined. At the end of the ulcer nearest the pylorus there is a piling up of the mucosa. At no point, however, is there any definite indication of carcinoma. The position of the ulcer, however, and the age of the patient make neoplasm a possibility.

Microscopic.—"The sections show an ulcer that is densely infiltrated with lymphocytes and plasma cells. The blood vessels are increased in number and they show a thickening of the wall and a periarterial collection of lymphocytes. The stroma in the depths of the ulcer is not dense fibrous tissue, but has a cobwebby appearance."

She made an uneventful recovery from the operation and was discharged to the syphilis clinic, where she was treated for 18 months. On March 22, 1929, x-ray examination showed a properly functioning gastro-jejunostomy. Her weight had increased 6.8 kilograms in two years. She was having some "sour stomach" and a heavy feeling in the abdomen. These symptoms were entirely relieved by hydrochloric acid. It is now four years since treatment was instituted and she continues in good health.

Case 3.—J. T., a colored male laborer, aged 29, complained of pain around the navel. He stated that his present illness had begun about one year before, when he began to have epigastric distress and pain. A physician gave him medicine which relieved him for about a month. These symptoms recurred, however, at irregular intervals. Four months before admission they became so severe that he was forced to stop work. For a month or so the pain had been more frequent. It followed each meal and woke him up during the night, but was relieved by taking soda. The pain was in the region of the epigastrium; was sharp, drawing and occurred in paroxysms, coming on five to ten minutes after eating and subsiding gradually. It did not radiate. Food eaten during the paroxysms increased the intensity of the pain. He was relieved by bending forward, by pressure over the epigastrium or by vomiting. The vomitus contained food eaten at the recent meal, never blood. He had been markedly constipated. He had noticed no blood in his stools, neither had they been tarry. In the past year his weight had fallen from 77.2 to 60 kilograms. Aside from a penile sore twelve years before, his past history was unimportant.

Fig. 6
Case 3. On admission.

Fig. 7
Case 3. Twenty-four hour plate made three months after treatment.

Fig. 8
Case 3. One year after beginning of treatment.

Examination.—The patient was a well developed markedly undernourished young negro. The mucous membranes and nail beds were pale. The abdomen was somewhat scaphoid. There was a visible fullness in the left epigastrium and marked sloshing was heard on palpation. There was no visible peristalsis. A "doubtful mass" was felt just to the right of the midline half way between the umbilicus and the xyphoid.

Laboratory.—Examination of the blood showed a severe secondary anemia. The blood Wassermann test was positive with cholesterin and alcoholic antigens. The Kahn test was positive. X-ray examination showed "a constant filling defect of the pyloric end of the stomach" (*Fig. 6*). There was considerable retention of the opaque meal five hours after ingestion and a normal distribution of the meal at 24 hours.

Course.—His course in the hospital was uneventful except that on one occasion he vomited a small amount of fresh blood. Examination of the stool at this time showed a strongly positive guaiac reaction. The clinical picture of a marked anemia, emaciation and gastric obstruction seemed to indicate an operation, which he refused. He was then referred to the syphilis clinic for treatment. He received thirteen treatments up to March 8, 1929, consisting of intravenous injections of neoarsphenamine (0.6 gm.), intramuscular injections of mercury, and seventy-five drops of a saturated solution of potassium iodide daily by mouth. His vomiting almost entirely ceased (only four times since December 21). He felt greatly improved and had gained 8.6 kilograms in weight. He still had occasional "sour stomach." An x-ray examination on January 25, 1929, still showed a large filling defect, much less in extent than at first, but with more evidence of retention than on September 26, 1928. There was considerable retention at the end of 24 hours (*Fig. 7*). On October 31, 1929, he was feeling well and had no symptoms. His weight was 79 kilograms (*Fig. 8*).

Case 4.—V. R., a colored garage worker, aged 22, was admitted to the out-patient department complaining of pain in the stomach. He had felt perfectly well until three weeks before, when he began to complain of a dull, aching pain in his epigastrium. This pain was at first relieved by eating, but was later aggravated by food. There was nausea, but no vomiting. He had lost approximately 9 kilograms in weight. No history of primary or secondary syphilis could be obtained. The remainder of the history was irrelevant.

Examination.—The physical examination was negative except for evidence of loss of weight. Examination of urine showed a faint trace of albumin, a few white blood cells and an occasional red blood cell. The hemoglobin was 62 per cent (Sahli). The stools contained occult blood. The contents of the fasting stomach showed no free hydrochloric acid. Following an injection of histamine, the free hydrochloric acid was found to be 22, and combined acid 39 degrees. The blood Wassermann and Kahn tests were positive. Repeated tests were also positive. X-ray examination on September 24, 1929, showed a constant filling defect of the pyloric end of the stomach, suggesting a new growth, or possibly a large ulcer (*Fig. 9*). The five-hour plate showed a small retention in the stomach and the findings suggested a small napkin ring carcinoma or possibly syphilis. The 24-hour plate showed a small retention in the stomach.

Course.—He had received three weekly injections of bismuth and was taking 1.6 gms. of potassium iodide three times daily, when he refused further treatment. The week after the first injection his weight had risen from 60.6 to 61.8 kilograms.

Case 5.—F. A., a negro laundress, aged 26, came to the out-patient department on August 28, 1929, complaining of pain in the epigastrium of five months' duration. The pain came on immediately after eating, lasted thirty minutes or longer, and was not relieved by food, but was relieved by vomiting. There was an extreme loss of weight, amounting to about 20 kilograms. There was no history of syphilis. The remainder of the history was unessential.

Examination revealed emaciation and enlarged epitrochlear and cervical lymph nodes. The blood Wassermann and Kahn tests were positive, the former on repeated examination. X-ray examination on August 28 showed a constant filling defect in the midportion of the greater curvature of the stomach (*Fig. 10*). There was a small gastric retention at the end of five hours. The x-ray findings were consistent with carcinoma or syphilis of the stomach. X-ray plates of the leg bones showed changes suggestive of syphilis. She

Fig. 9
Case 4. On admission.

Fig. 10
Case 5. On admission.

Fig. 11
Case 5. Three weeks after beginning treatment.

was placed on "mixed" antisyphilitic treatment and improvement began after she had taken potassium iodide for three days. After three injections of bismuth she felt so much better that she failed to return for treatment and was found performing her usual work. On November 9, 1929, she was feeling well and doing her usual work. There were no gastrointestinal symptoms and she had gained 12 kilograms in weight (*Fig. 11*).

Case 6.—T. W., a colored laborer, aged 35, came to the clinic complaining of pain in the abdomen. He stated that he was well until three months before, when he began to notice gas on his stomach after eating. He was relieved for a while by soda, but the symptoms continued and he began to have pain in the epigastrium in the morning before breakfast and at times when he was hungry. For nine weeks he had been eating only soft food. About four weeks before admission his appetite became poor, he became nauseated immediately after eating and often vomited. The vomiting occurred about one-half hour after meals, the vomitus containing food eaten at the preceding meal, but never blood. He was given a powder to take after eating, but this made him vomit more. Vomiting always relieved his symptoms. He also became constipated soon after his illness began. He had lost about 15.4 kilograms. Aside from a history of a penile sore 10 years before, the rest of the history was unimportant.

Examination.—The physical examination showed a poorly nourished, well-developed colored man of 35, who had lost considerable weight. The mucous membranes were slightly pale. There was a slight general glandular enlargement. The abdomen was scaphoid and there was moderate tenderness in the epigastrium. Some observers thought there was a mass in the left epigastrium. The liver edge was felt just below the costal margin. The remainder of the physical examination was normal. Examination of the gastric contents revealed an absence of free hydrochloric acid, and the presence of occult blood and lactic acid. The blood Wassermann test was positive. The cerebrospinal fluid contained seven mononuclear cells; there was no increase in protein and its Wassermann test was negative. X-ray examination on November 20, 1925, showed "a large irregular filling defect occupying the middle third of the greater curvature and involving the lesser curvature (*Fig. 12*). There was no six-hour retention. The duodenal gap was not seen." The tentative diagnosis was syphilis or carcinoma of the stomach.

Course.—Because of the fact that the condition was possibly carcinoma of the stomach, an exploratory laparotomy was advised, but the patient refused it. He was discharged and referred to the syphilis clinic for treatment. His treatment there consisted of weekly injections of neoarsphenamine (0.6 gm.) and mercury (0.1 gm.) and 4 gms. of potassium iodide daily by mouth. After three months of this treatment, followed by four weeks' rest, he showed marked improvement in all his symptoms. His weight had increased 12.2 kilograms. A note at this time states, "having no pain or other gastric symptoms." X-ray examination at this time (March 8, 1926) was reported as showing "the deformity in the stomach is slightly smaller than on the previous examination; however, the stomach is of the hour glass type" (*Fig. 13*). He was given another course of this treatment for seven weeks, followed by six weeks' rest, and was then given a short course of treatment with sulpharsphenamine followed by an eight weeks' rest. At this time his blood Wassermann was still positive and his spinal fluid was still normal. For this reason his treatment was changed to intramuscular injections of bismuth. A note on October 5, 1926, states: "The patient is symptomless. His digestion is good. He has lost 2.2 kilograms in the last three weeks. Has dissipated a good deal and attributed loss of weight to this." Treatment with bismuth was continued. March 18, 1927, another note states that "four days ago he drank some liquor and since then has had abdominal pain and vomiting. The next day he coughed up a little blood." He continued taking treatments through October, 1927, two years. At this time his blood Wassermann was still positive. X-ray examination on April 19, 1929, showed improvement in the outline of stomach, but there was still a persistent filling defect (*Fig. 14*). There were no gastrointestinal symptoms. The weight on July 19, 1927, was 64.4 kilograms, a gain of 11.3 kilograms. When seen on October 17, 1929, he was having no symptoms.

Case 7.—L. B., a negro laborer, aged 28, came to the hospital complaining of inability to keep anything on his stomach and pain in the small of the back.

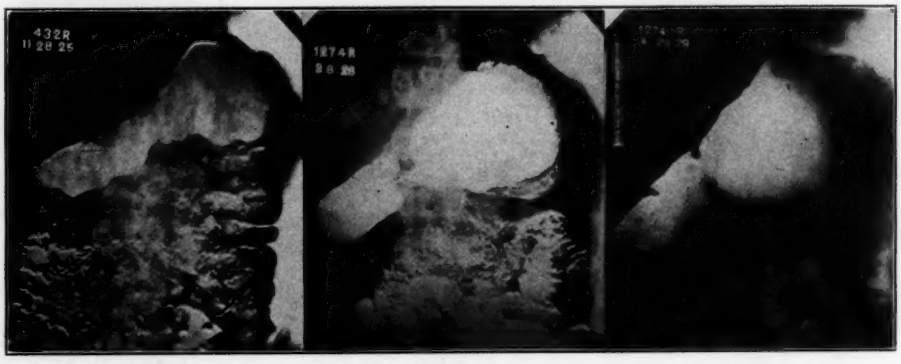

Fig. 12
Case 6. On admission, November, 1925.

Fig. 13
Case 6. Four months after beginning treatment.

Fig. 14
Case 6. Three and one-half years after admission.

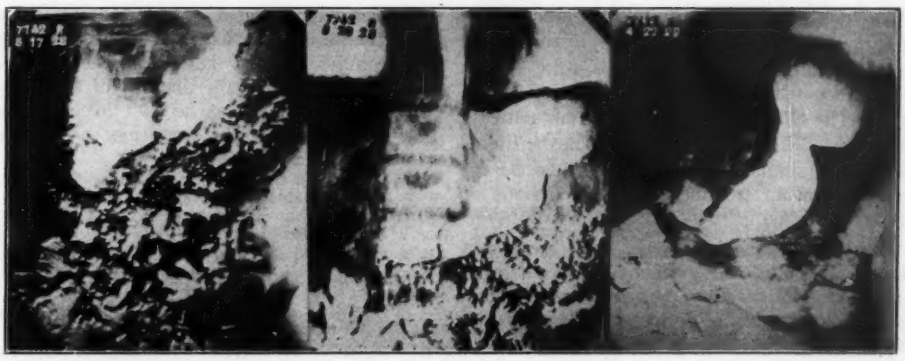

Fig. 15
Case 7. On admission.

Fig. 16
Case 7. Three months after beginning treatment.

Fig 17
Case 7. One year after admission.

The present illness had begun two months before with a non-radiating pain in the back. Shortly after, he noticed pain in the stomach immediately after eating, followed by nausea. If much water was drunk before these symptoms occurred they would be followed by vomiting. About five days after the onset, while playing baseball, he was seized by pain in the region of the stomach and vomited about a half teacupful of fresh blood. Two weeks before this he had noticed tarry stools. On admission he complained of pain, a sensation of swelling in the epigastrium and nausea one-half to one hour after eating. These symptoms were relieved by vomiting. He had never vomited food eaten several hours or the day before. He had lost 10.4 kilograms in two months and was very weak. The past history was unessential except for the history of a penile sore four years before.

Examination.—The examination showed evidence of marked loss of weight. The abdomen was moderately distended and tympanitic in the upper portion and there was marked gurgling in this area on palpation. The epigastrium was slightly tender. The Wassermann and Kahn reactions were positive. The examination of the cerebrospinal fluid was negative. X-ray examination showed a large filling defect completely encircling the middle third of the stomach and constricting the lumen, which was rough and irregular, to approximately one-half inch in diameter (*Fig. 15*). The filling defect extended to within 3.75 cm. of the esophageal orifice and 5 cm. of the pylorus. No peristaltic waves were seen. The stomach held a very small amount of the meal and emptied freely. There was marked peristalsis of the upper small intestine and slight dilatation of the jejunum. The 24 hour examination showed a normal distribution of the meal.

Course.—Before antisyphilitic treatment was begun his weight fell to 45.9 kilograms. He was placed on a soft diet and received five intravenous injections of neoarsphenamine (0.6 gms.), five intramuscular injections of mercury (0.065 mgs. each) and 4 gms. of a saturated solution of potassium iodide daily by mouth. After twenty-nine days of this treatment he had gained eleven pounds and was feeling much better, but still vomited occasionally. X-ray examination at this time showed the same deformity of the stomach, but it was less marked. Further antisyphilitic treatment was prescribed, but he returned for only two treatments. Twenty-one days after the second treatment he returned weighing 50.9 kilograms, but was not feeling as well as on his previous visit. He was able to eat watermelon, vegetables, rice and bread. He could drink a pint of sweet milk at one time. His vomiting had been a bit more frequent. X-ray examination then showed less deformity of the stomach than on the previous visit (*Fig. 16*). He returned for one more intravenous treatment, but was not seen thereafter until April 19, 1929. He had gained 10.2 kilograms in eleven months. There was still occasional vomiting after eating greasy foods, and he had gas on the stomach, which was relieved by belching. X-ray examination showed a slight improvement in the deformity of the stomach (*Fig. 17*). He refused further antisyphilitic treatment.

DISCUSSION

We believe that these seven patients may reasonably be considered to have syphilis of the stomach. The relative rarity of this condition is shown by the fact that these seven cases occurred among approximately 3,000 cases of syphilis. The incidence of syphilis of the stomach is so low that it is quite possible that physicians in general practice, or even gastroenterologists, may never encounter such a case. Many of the clinics for syphilis are purely treatment clinics, and it may therefore be assumed that a certain number of cases of this condition may be overlooked, even in clinics where a large number of syphilitic patients are seen. These two facts are probably responsible for the rarity of reports of this condition in the literature.

The clinical findings in these cases seem quite similar to those of other authentic cases described in the literature. In the case in which sections of tissue from the lesions were stained, *Treponema pallidum* was not found in the tissues, but, like Singer and Dyas, and others,

we do not consider this necessary in order to make a diagnosis. The microscopic picture of the tissue in each of these cases is quite similar to that reported by Singer and Dyas[1] and Windholz.[8] The clinical course of all of our patients also followed that of those reported in the literature and is similar to that which would be expected following treatment of other lesions of tertiary syphilis.

The patients in this series who were not treated surgically were given no treatment other than antisyphilitic therapy, and hydrochloric acid in those with achlorhydria. However, it stands to reason that greater anatomic and symptomatic improvement would be gained by the use of the better methods of treating peptic ulcers in addition to antisyphilitic therapy. Flexner[9] and others have reported perforations of syphilitic ulcers of the stomach. Flexner's case was apparently caused by dietary indiscretion. This complication should be borne in mind and until its danger is over the patient's diet should be regulated.

The institution of antisyphilitic therapy should be cautiously undertaken and the Herxheimer reaction must necessarily be avoided. Bockus and Bank[10] report a perforation of a syphilitic gastric ulcer following the use of arsphenamine when this drug was given at the beginning of therapy. These authors also cite a similar case reported by Selenew. For this reason, in all cases the use of arsenicals should be preceded by several weeks of bismuth, or mercury, and iodides. The courses and duration of antisyphilitic therapy should follow the accepted standards of the treatment of tertiary syphilis.

Among the criteria for the diagnosis of syphilis of the stomach we have included improvement under antisyphilitic treatment. This must be qualified, however, because of the fact that lesions involving the pyloric and prepyloric regions of the stomach are prone to cause obstruction by cicatrization, even though the patients may receive antisyphilitic therapy, or indeed, because such treatment is given. Eusterman[11] states that 30 per cent of 40 cases, which he reported in 1918, required surgical intervention. Graham[12] emphasized the fact that the obstruction caused by these cicatrizations requires surgical intervention more commonly than is supposed. Bromberg and Magness[13] refer to this phenomenon as "the paradox of healing." The time and character of surgical therapy are more or less matters of judgment. Unless the need for operation is urgent, it is wise to wait until after the patient has had several weeks of active antisyphilitic therapy before surgical intervention. By this time the amount of scar tissue will probably have reached its maximum and tissue healing after the operation will be much more prompt and clean.

SUMMARY AND CONCLUSIONS

(1) Syphilis of the stomach is a relatively rare condition. In our series of approximately 3,000 syphilitics the incidence was about 0.2 per cent.

(2) Criteria for the diagnosis of syphilis of the stomach are given. Fulfillment of these criteria is necessary and sufficient for a reasonably correct diagnosis, but is not an absolutely conclusive proof.

(3) Seven cases in which these criteria are met are reported. In two instances in which operation was performed the microscopic changes in the tissue from the lesions in the stomach are compatible with those common to tertiary syphilis elsewhere in the body. No cases of typical gummata were encountered.

(4) All patients in this series showed changes on x-ray examination, resembling those of carcinoma of the stomach.

(5) Syphilitic lesions of the stomach, when located at the pylorus, frequently cause obstruction. This obstruction is often increased by antisyphilitic treatment. This fact constitutes no contraindication to treatment, but the probable need of subsequent surgical intervention should be recognized. Symptoms of increasing obstruction are not necessarily to be considered as evidence against a diagnosis of syphilis of the stomach.

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DISCUSSION (*Abstract*)

Dr. John B. Youmans, Nashville, Tenn.—One of the commonly accepted criteria of the diagnosis is improvement under antisyphilitic treatment. If the patient is given a therapeutic test and he gets better it is considered that he probably had syphilis instead of carcinoma. However, it is important to note that this may not be true in those cases where the lesion is situated at the pylorus. In them, despite a healing of the syphilitic lesion, or rather because of it and the resulting scar, certain symptoms, particularly those resulting from obstruction, may increase. For example, in one case with a lesion of the pylorus the patient refused the operation which was advised. At present the stomach has increased in size and one can feel the enlarged fundus under the left costal margin. We feel that this patient will do well as long as his stomach can push food through, but the time will shortly come when he will be unable to empty the stomach and symptoms of obstruction will follow. Thus the failure of obstructive symptoms to disappear or an increase in such symptoms is not necessarily a contraindication to the diagnosis of syphilis of the stomach.

Dr. Marvin Smith, Miami, Fla.—Syphilis of the stomach exists in its tertiary stage and in my belief in its primary stage as well. Chancres of the mouth and throat are common, and I believe that chancre of the stomach is a frequent condition. In my opinion, the day will come when we shall definitely establish this, even before we can get the deformities demonstrable by x-ray films. I concur fully in the criteria established by the essayists for tertiary syphilis of the stomach. In cases of marked hyperchlorhydria or gastric ulcer, where the Wassermann is positive, it is impossible to say whether the clinical picture and the chain of symptoms result from a simple gastric ulcer or a syphilitic chancre.

We cannot determine whether we are dealing with carcinoma or tertiary syphilis of the stomach in a case of definite stomach deformity with positive blood findings.

Dr. John B. Fitts, Atlanta, Ga.—I have been especially interested in this paper, because this past spring we carried on a similar study in the Medical Wards of Emory University. Since the establishment of these Wards in 1922 we have had about 35,000 admissions and have found about 8 cases of syphilis of the stomach. Our impressions have been practically identical with those of Dr. Harris.

Why out of that particular type of material do we not find a greater number of cases of gastric syphilis? I think it is possibly due to the fact that the gastrointestinal tract may have some immunity to syphilis. Our study was made in somewhat the manner of Dr. Harris'. The response to treatment was most striking and the data of our cases followed very closely his series.

There are two points I want to bring out: first, the fact that x-ray evidence in these cases shows the syphilitic infiltration to be quite symmetrical as opposed to the rather irregular moth-eaten appearance in carcinoma. Secondly, most of the cases have an absence of hydrochloric acid and after treatment in many of them the hydrochloric acid remains absent. The tumor disappears in a predominating number after antiluetic treatment.

Dr. Julius Friedenwald, Baltimore, Md.—As to the diagnosis of this affection, I should like to call your attention to a monograph of Professor Roman Luria, who has written an extensive treatise on syphilis of the stomach. It is a very splendid monograph on this subject. Luria makes a plea for early diagnosis and calls attention to many of the points which have been brought out in this discussion.

Dr. J. Russell Verbrycke, Jr., Washington, D. C.—I am especially interested in the subject of syphilis of the stomach because of a case which I published in the last number of the *American Journal of Syphilis*. I believe it to be the only one on record of congenital syphilis of the stomach in a young boy.

Dr. Harris (closing).—Dr. Smith's point about a possible chancre of the stomach certainly does seem possible, although I have never seen one nor heard of one. I should imagine that they can occur and if they do occur I presume they would probably show the ordinary niche that appears in a gastric ulcer in the x-ray picture on account of the conformation of the chancre. I do remember one case at the Vanderbilt Hospital with secondary syphilis whose symptoms were typical of a peptic ulcer. There was a suspicious area which looked as if it might be a large superficial ulcer, but we were not sure about it.

Syphilis of the stomach simulates carcinoma closely. An ordinary patient with latent syphilis has a number of vague gastrointestinal complaints. I think that all cases in private practice with syphilis and dyspepsia should have gastrointestinal x-ray series. It is impossible for economic reasons to do that in a large clinic such as we have at Vanderbilt.

Dr. Fitts brings up the question of the possibility of a tissue immunity or tissue resistance of the gastrointestinal tract to syphilis. That is quite probable. There must be a certain amount of tissue immunity because we do not see nearly the amount of tertiary syphilis in the gastrointestinal tract that we see in other tissues of the body.

We found symmetrical filling defects in our cases of the hour glass type, but in the cases of ulcer at the pylorus they seemed to be all very irregular and very jagged. The absence of free hydrochloric acid in most of our cases has certainly been plainly shown. One patient had a low acidity. In none of those without hydrochloric acid where we have done the repeated analysis has the free hydrochloric acid returned.

Dr. Verbrycke mentioned a case of congenital syphilis of the stomach. I have never seen nor heard of one. I think it is quite probable it is the first case on record.

Cases of syphilitic ulcers of the stomach have been reported in which treatment was begun with arsphenamine and several hours afterward the ulcer perforated and acute peritonitis resulted. That may be explained by the local tissue reaction which comes on immediately after the injection of one of the arsenicals. The cause of this reaction we do not know. It may be that some of the spirochetes are killed and others merely irritated and stimulated, or it may be the result of exotoxins eliminated by the killed spirochetes. Nevertheless, the danger of a Herxheimer reaction is always present. It can be prevented by fairly large doses of iodides and bismuth or mercury before the arsenicals are given.

TULAREMIC PERITONITIS: REPORT OF CASE OBSERVED FOR FOUR YEARS*

By M. J. KILBURY, M.D.,
and
S. C. FULMER, M.D.,
Little Rock, Ark.

This case, J. M. H., entered the hospital, St. Vincent's Infirmary, March 21, 1927. He remained in the hospital until March 30, 1927, and has been under observation until the present time.

On entering the hospital he gave a history of having dressed three cotton tail rabbits December 18, 1926, three months previously. Three days later he became suddenly ill, suffering with high fever (105° F.), general aches and pains, nausea, and severe prostration. At this time he noticed a small ulcer on the inner surface of the ring finger of the right hand. The next day the lymph nodes draining this area were enlarged and very painful. The chain of lymph nodes varied in size from 1 to 4 cm. in diameter. The fever, enlarged lymph nodes and ulcer persisted for about three weeks. The patient then returned to his work, having lost about 15 pounds in weight.

After going back to work he noticed that his abdomen was beginning to swell and that he was having a little fever in the afternoon. The abdomen gradually increased in size so that at the time of entrance into the hospital he could hardly button his trousers about the waist. The daily elevation of temperature had persisted. At times he suffered from abdominal distention, but this was relieved by a cathartic. There was no abdominal pain and there were no gastrointestinal disturbances nor respiratory symptoms. His appetite was good.

The patient was well developed and fairly well nourished. The pulse was 102°; temperature 101.2°; respirations were 20; blood pressure 110 systolic and 70 diastolic.

The right ring finger, palmar surface, showed the scar of a recently healed ulcer about one-fourth inch wide. There was a chain of enlarged lymph nodes along the extensor surface at the right forearm which terminated in a much larger node on the inner side of the right elbow and in the right axilla. The epitrochlear lymph node was soft; the axillary hard, and both were painless. No other adenopathy was found.

The heart was not enlarged; the rate was 102; there was no arrhythmia. There was a systolic murmur at the apex transmitted upward and to the left. The lungs were entirely normal on physical examination.

The abdomen was moderately distended and regular in contour. The superficial veins in the lower quadrants were prominent. It was estimated that about a half a gallon of free fluid was in the abdominal cavity. There was no tenderness anywhere. The liver was moderately enlarged. The spleen was not felt. No other organs nor masses could be palpated. The remainder of the physical examination was entirely negative.

*Read in Section on Pathology, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

Fig. 1
(1) Spleen showing typical lesions of tularemia. (2) Caseous lymph glands. (3) Area of calcification.

Fig. 2
Liver showing typical lesions of tularemia.

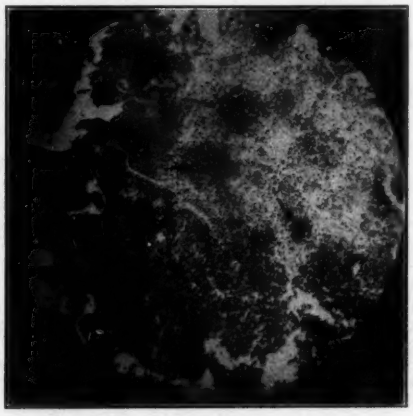

Fig. 3
Multiple lesions from guinea pig, died in four days. Spleen almost completely destroyed.

Laboratory Examination.—The Wassermann reaction was negative. A roentgenogram of the chest was negative. The urine was normal. Blood examination revealed: total red count, 4,500,000; hemoglobin, 80 per cent; no pathological red cells; no malarial parasites; leucocytes 7,000, of which 72 per cent were polymorphonuclear neutrophils, 24 per cent small mononuclears, and 4 per cent large mononuclears.

Fig. 4
Photomicrographs of typical abscess of liver, tularemia.

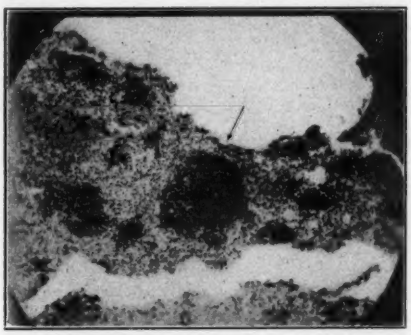

Fig. 5
Typical abscesses in spleen, tularemia.

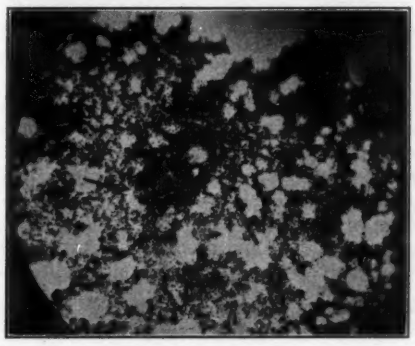

Fig. 6
Photomicrographs of typical lesions of tularemia in lung.

The bacteriological work was started March 22. About 1 c. c. of pus from the abscess on the right epitrochlear lymph node was injected into the inguinal region of guinea pig No. 1. This animal remained perfectly well.

An agglutination test was done on the blood serum of the patient March 23. The serum was found to agglutinate *Bacterium tularense* in a dilution of 1:640. The patient also produced a report of a positive agglutination from the Hygienic Laboratory, Washington, D. C.

Knowing that the patient had tularemia, we undertook to determine whether the ascites was the result of the same infection. About 20 c. c. of the greenish tinged cloudy ascitic fluid was withdrawn March 24. Cultures and smears from this fluid failed to show the presence of organisms. The fluid was centrifugalized; the sediment was mixed with about 5 c. c. of physiological salt solution and injected into the inguinal region of guinea pig No. 2. The pig died in four days, showing lesions of tularemia. Another specimen of fluid was obtained from the patient and injected into pig No. 4. This pig died in four days with lesions of tularemia.

We then set out to isolate the organism. This problem was attempted after considerable hesitancy on account of the danger of infection to laboratory workers. The strain was carried through a long series of animals before the organism was obtained, the spleen of the infected animal being rubbed on the shaved abdomen of the healthy pig. The spleen was used for culture in each instance. In our first attempts the animals were allowed to die and in some cases the animals had been dead several hours before the cultures were made. The organism should grow well on egg yolk medium, but we were unsuccessful with this, our failure probably being due to improper facilities for sterilization. We also tried human blood agar and rabbit blood agar enriched with sterile rabbit liver without results. We then prepared a medium of meat infusion agar containing 0.1 per cent cystine and 1 per cent dextrose enriched with rabbit's blood, the reaction being carefully adjusted to a pH. of 7.2. With this medium we obtained the organisms from Pig 13, the ninth animal passage. A greenish smeary growth first appeared on this medium in three days. A luxuriant growth was obtained on transfer tube in from twenty-four to forty-eight hours. No growth was obtained on plain agar and very little growth on dextrose cystine agar. On staining, the organism appeared as a short Gram-negative rod and in coccus forms. The organism was agglutinated by anti-tularense serum in a dilution of 1:320. Three guinea pigs died within three days following injection of the culture. The fourth pig died with very typical lesions four days after the shaved abdomen had been painted with the culture. There were enlarged caseous lymph nodes and multiple white foci of necrosis in the spleen and liver.

The organisms were submitted to the Hygienic Laboratory, which reported that the culture conformed in all respects to *Bacterium tularense*. It was correct morphologically, was Gram-negative, was agglutinated by anti-tularense serum, and grew only on special

medium and not on plain agar. It killed a guinea pig in three days with typical lesions of tularemia.

Portions of the spleens and livers from most of the animals were submitted to the Hygienic Laboratory. It is interesting to note that the first tissues sent had no effect on guinea pigs. The livers and spleens were sent in glycerin in the same container. They failed to introduce the strain into the guinea pigs until a specimen of the spleen by itself was received. Dr. Francis informed us that the organism is short lived in the liver tissue and that the spleen should be used in transportation of the strain.

The strain was carried through 23 animals during a period of two months. All the animals were examined post mortem and cultures of the organs were made. None of the laboratory personnel contracted the disease. This is rather unusual, as practically all laboratory workers who have handled infected animals for any length of time have had tularemia. Great care was exercised. The animals were dipped in 10 per cent solution of formaldehyde before autopsy. Gowns, masks, glasses and gloves were worn. All infected tissue was handled with tissue forceps. All instruments and materials used were sterilized immediately.

The patient was discharged from the hospital March 30, 1927, to be kept under observation at his home. All his symptoms gradually subsided. Three months after his discharge he was able to be up part of the time. At this time his abdomen still showed some distention, but no additional complications had arisen. His treatments had been entirely symptomatic.

The distention had entirely disappeared one year after leaving the hospital. His strength, however, returned slowly. He was not able to take up his work as Manager of the button factory until about two years after leaving the hospital.

In a recent examination, October 8, 1930, nearly four years after the onset of the condition, the patient states that it was 2½ years before his strength returned to normal. At present he is very well. He says he is as well as before his illness except that he cannot pitch baseball as before. His arm has lost the "old whip."

A complete physical examination revealed no abnormalities with the exception of a slight systolic murmur at the apex and a moderate distention of the abdomen. A fluid wave could not be elicited.

His urine was normal. Blood examination revealed 6,000 white cells; 4,000,000 erythrocytes; differential: 78 polymorphonuclears; 165 small lymphocytes; 6 monocytes; 2 eosinophils. Serological examination revealed a negative Kolmer. The serum agglutinated *B. tularense* in a dilution of 1:320.

There have never been any reports of abdominal complications in tularemia so far as I know. The pathological findings have been largely in the spleen, liver and suprarenal manifested by areas of focal necrosis of the miliary type. This is especially true in infected wild rodents in which extensive study has been done by Francis and his co-workers during the past 15 years. There has not been ample opportunity to make a thorough study of the lesions in man because of the very low human mortality.

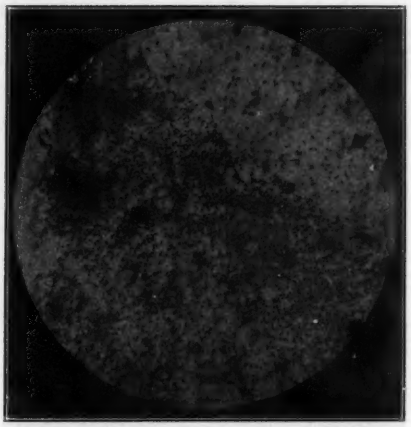

Fig. 7
B. tularense isolated from ascites fluid. Young culture.

Fig. 8
B. tularense. Same culture as Fig. 7 about one month after isolation.

The case reported above apparently had an ordinary attack of tularemia until abdominal complications arose three months after the initial infection. The abdominal condition which resembled that of a low grade peritonitis with ascites and gaseous distention aroused our interest in the case and prompted us to work out what apparently is a new clinical manifestation of a new human disease, tularemia.

CONCLUSIONS

(1) *Bacterium tularense* may cause peritonitis and it may be isolated from ascitic fluid.

TABLE OF ANIMAL INOCULATIONS

Date	No.	Inoculation	Symptoms	Lived	Died	Autopsy Findings	Cultures
3-23	1	Pus from abscess on arm	None			Pig remained well	
3-24	2	Peritoneal fluid	Intensely ill in 48 hours	4	3-28	Small abscesses on spleen and liver. Mic. shows typical lesions	Cultures made on egg media. Negative
3-28	3	Spleen of Pig No. 2 rubbed on shaved abdomen	Intensely ill in 48 hours; ulcers on abdomen; watery eyes	4	4- 4	Ing. lymph glands enlarged. Many abscesses in liver and spleen	Cultures made on egg media. Negative
3-29	4	Peritoneal fluid in ing. region	Ing. greatly enlarged; rapid pulse; fever, watery eyes	5	4- 8	Same as in Pig No. 3	Cultures made on egg media. Negative
4- 4	5	Shaved abdomen painted with spleen of No. 2	Same as in Pig No. 4	6	4- 9	Same as in Pig No. 3	Cultures negative on egg media
4- 9	6	Shaved abdomen painted with spleen of No. 5	Same as above	4	4-13	Same as in Pig No. 3	Cultures made on human blood media
4-13	7	Shaved abdomen painted with spleen of No. 6	Same as above	5	4-18	Same as pig above	Cultures made with human blood, and treated with rabbits' spleen and liver
4-13	8	Shaved abdomen painted with spleen of Pig. No. 6	Same as above	4	4-18	Pig was killed to prevent post mortem bacteria; legions same	Human blood media; negative
4-22	9, 10	Shaved abdomen painted with spleen of No. 8	Same as above	4	4-26	Same as above	Human blood media. Culture negative
4-26	11, 12	Shaved abdomen painted with spleen of No. 9	Same as above	5	5- 1	Same as above	Human blood media. Culture negative
5- 1	13, 14	Shaved abdomen painted with spleen of No. 11	Same as above	6	5- 7	Same as above	Human blood media. Culture negative
5- 7	15	Shaved abdomen painted with spleen of No. 13	Same as above	7	5-15	Same as above	Rabbit blood, cystine 3 days' incubation. B. tularense
5-13	16	Injected with culture of No. 13	Severe symptoms in 24 hours	2	5-16	Enlargement of the spleen. No gross findings	No culture made
5-14	17	Shaved abdomen painted with culture	Same as in Pig No. 4	4	5-19	Same as in Pig No. 3	No culture made

This is the first time it has been isolated from ascitic fluid.

(2) It is possible for laboratory workers to handle animals infected with *Bacterium tularense* in safety if great care is exercised.

(3) When the strain is transported, the spleen should be sent in a container by itself.

(4) The organism grew best for us on glucose cystine meat infusion agar of pH. 7.3. This formula is recommended by Dr. Francis.

(5) The morbidity following tularemic peritonitis extends over a much longer time than would be expected with an uncomplicated case.

(6) This patient is living and well four years after having had tularemic peritonitis.

DISCUSSION (*Abstract*)

Dr. C. N. Kavanaugh, Lexington, Ky.—Although the rabbit and wood tick (*Dermacentor andersoni Stiles*) constitute the important reservoir of infection for other animals and man, recent reports of new animal hosts and transmitters (squirrel, opossum, muskrat, woodchuck, European water vole, sheep, cat, coyote and quail) and new insect vectors (wood tick of California, *Dermacentor occidentalis Newmann*) indicate the increasing importance of tularemia as a disease of man.

The employment of agglutination in conjunction with clinical evidence has played a great part in bringing to light cases of hitherto unrecognized tularemia. In this way we have been able to prove the existence of tularemia in Kentucky over a period of twenty-two years.

The more recent recognition of the disease in Japan, Canada and Russia is of interest.

Two cases of peritoneal involvement have been previously recorded. Fulmer reported briefly a death occurring on the twelfth day of illness with symptoms of general peritonitis. Francis reported a death occurring on the twenty-ninth day. Post mortem examination revealed a general peritonitis with plastic exudate covering the abdominal contents. The spleen was very large and there was some ulceration of the cecum.

The durations of illness of fatal cases have ranged from four days, seven hours, to nine months.

The lesions in the human show a rather marked contrast from those of susceptible animals in that in the former, fibrous tissue proliferative changes are the most characteristic. The lesions of tularemia should be classed with the infective granulomas.

In a series of seventy-five cases that have come under my personal observation, four terminated in death. Bronchopneumonia was the terminal condition in one case, death occurring on the fourteenth day. Coma, accompanied by albuminuria and casts, was the terminal condition in the second case, death occurring during the ninth month. Death in the third patient was preceded by a spontaneous pneumothorax, death occurring on the thirtieth day. The fourth patient manifested delirium and stupor and died of bronchopneumonia on the twenty-sixth day.

The following unique features are of unusual interest: (1) the certainty of infection of laboratory workers; (2) the persistence of agglutinins in the blood of long-recovered cases; (3) the cross-agglutination of *Bacterium abortus* and *Bacterium melitense;* (4) the granulomatous character of the lesions in man as contrasted with the lesions in animals; (5) the cystine requirement of the organism in culture mediums; (6) its pleomorphism; (7) its penetration of the unbroken skin; (8) its invasion of fixed tissue cells: the hepatic cells of a mouse and the intestinal epithelium of tick and bedbug; (9) its hereditary transmission through the egg of the tick to the next generation of ticks; (10) the great variety of insect hosts; (11) the great variety of animal hosts.

Dr. William Litterer, Nashville, Tenn.—Francis is of the opinion that the majority (according to him) of the individuals dying really die from bronchopneumonia of the pneumonic type, and he is quite convinced that many a patient has died with a diagnosis of bronchopneumonia which was really unrecognized tularemia. He reports about 26, as I remember, in the *Public Health Reports,* including 2 cases in our State in 1927 and 1928. In these two years we had an epidemic in Nashville in which there were about 108 cases, with 4 deaths. Two autopsies were made. Unfortunately I was not allowed to take any of the tissue, but was allowed simply to look around.

We found in the lungs what appeared to be a regular patch of pneumonia made up of the fairly characteristic nodules of tularemia, the giant cells. Goodpasture had a case, I think, of the septicemic type that had no lung involvement, and he went into his case quite exhaustively and published it. I gave my report to Dr. Francis, which he included in his report of 26 cases.

CHRONIC EXFOLIATIVE DERMATITIS*

By J. Richard Allison, M.D.,
Columbia, S. C.

Since the days of the Hebra-Wilson controversy on this subject much has been written and a great deal learned as to the etiology and classification of this disease. Some have even questioned the existence of the disease entity, pityriasis rubra of Hebra, stating that all cases will eventually be classified under some of the known etiological headings such as tuberculosis or lymphoblastoma. Regardless of the etiology, chronic exfoliative dermatitis has certain findings common to all cases. It may be very acute in onset; or it may spread gradually from small areas of skin disease that have been called eczemas of various types. There is a tendency to dry scales and dry skin in the chronic cases. In acute exacerbations moist areas are found with excoriations and vesicles. There may be some edema and secondary infection about the legs. The hair and nails are usually involved in the late stages of the disease. There may or may not be infiltration of the skin, depending upon the origin of the dermatitis. The tendency to atrophy is especially noted about the knees. The two most constant symptoms are a great sensitiveness to cold and a musty odor of the skin. The itching is variable; some complain intensely at times and some are practically free from itching. There is in all cases a general adenopathy of a variable degree, depending upon the type. This is a bare outline of a typical case, and while there are many variations, it should be sufficient to make a diagnosis of exfoliative dermatitis.

In this paper we shall confine our discussion to certain phases and types of exfoliative dermatitis in which the etiology either is not known or has not been discussed previously in the literature. We shall, therefore, exclude from the discussion all of the acute exfoliative dermatitis due to the heavy metals, for example, arsenic, mercury and bismuth; and also those due to local applications of irritating drugs such as chrysarobin, tar and other applications, of which many cases have been reported. The chronic exfoliative dermatitis that is often the precursor of years of lymphoblastomas, mycosis fungoides and other fatal conditions will not be consid-

*Read in Section on Dermatology and Syphilology, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

ered, except to repeat what is well known: that the above conditions should be considered throughout the course of any case of chronic exfoliative dermatitis.

Ritter's disease is classified as an exfoliative dermatitis. Halden-Davis says that "Ritter's disease is a variety of pemphigus neonatorum." Pusey says "that recent investigations leave practically no doubt that it is due to a staphylococcus infection, that it is identical in etiology with so-called pemphigus neonatorum, and that both are universal impetigos occurring in infants." If these two authorities are correct, I can justifiably report five cases of Ritter's disease. During the past ten years in a foundling asylum in Columbia I have seen five cases of an acute dermatitis in infants, ages from two to four weeks. Each case ran an acute course and ended fatally in four to eight days. Each baby was an apparently normal individual, and there was nothing in the history of either mother or child that seemed to have any bearing on the disease. The remarkable feature about these cases was the very short time required for the entire surface to be involved; a matter of only a few hours. In two of the cases seen early the erythema appeared first about the face. The temperature ran from 99 to 101°. In two cases the temperature ran as high as 102° on the day of death. The skin came off in large sheets and the babies had all the appearance of being scalded. There were no constitutional symptoms other than that the patients were very restless, evidently in pain, and refused to nurse. In two cases the eruption for the first day had some of the characteristics of bullous impetigo which soon lost its identity in the rapidly exfoliating skin in large sheets. In each of these cases the mother developed on the second day a very severe form of bullous impetigo about the breasts, neck and face. This significant fact suggests that they were all a severe type of impetigo, even though they showed some of the signs of Ritter's disease. Guy, and the majority of those who discussed his paper, believe that Ritter's disease is a clinical entity and that such cases as I have reported are pemphigus neonatorum or some form of impetigo erroneously classified as Ritter's disease. I wish to suggest that Ritter's disease, pemphigus neonatorum and bullous impetigo, while they may, or may not, be the same disease, at least are not exfoliating dermatitis and are erroneously classified under that heading in the literature.

Chronic exfoliative dermatitis following dermatitis venenata has not, so far as I can find, been discussed in the literature. The following case illustrates this type:

A farmer sensitive to the velvet bean was treated by me for three successive summers for a dermatitis involving the face, hands and legs. Each year the condition was more resistant to treatment. No irritating applications were used at any time. The third year he developed a generalized exfoliating dermatitis and spent four weeks in the hospital. The condition has never entirely cleared up, and for two years now he has had a mild generalized dermatitis, worse in the summer, and gradually getting weaker. The findings in this case are essentially negative except for a secondary anemia and a basal metabolic rate of plus 50. I have found a high basal metabolic rate in all my cases, probably secondary to the excessive activity of the skin, as suggested by Tidy.

A second case, M. L. L., 50 years old, cotton mill laborer, was first seen in April, 1927. He gave a history of eczema of the hands, feet, and legs for ten years, usually worse in hot weather. At times he had dermatitis about the face and eyes. The history and general physical examination were essentially negative. Examination for fungi was negative and skin tests were negative. A sensitizing agent could not be found, though the history pointed to allergy on account of the seasonal attacks. He was treated by me with indifferent success at infrequent intervals for three years. I do not think that his skin was ever irritated by local applications. In August, 1929, he showed a generalized exfoliative dermatitis. He was hospitalized for one month, during which time a detailed study was made.

Fig. 1
Case 2, M. L. L.

The urine showed a trace of albumin and a few hyaline casts. The blood urea was 30 mg. per 100 c. c., Wassermann negative, blood nitrogen 14, hemoglobin 65 per cent, red cells 4,200,000, white cells 7,000, polymorphonuclears 64, small lymphocytes 20, large 10, basophils 1, eosinophils 5 per cent. Gastric analysis showed free hydrochloric acid 37, total 78. The basal metabolic rate was 60 plus. The blood sugar was 80 mg. There was considerable nodular enlargement. A lymph node was removed from the groin and the pathological report showed only chronic inflammation. He improved on a low carbohydrate diet. On two different occasions 150 grams of glucose were given by mouth in twenty-four hours, causing a distinct exacerbation of his skin condition. He was given three c. c. of citrated blood from an active malarial patient, and immediately after the injection there was a mild anaphylactic shock in which the erythema disappeared, leaving a normal skin except for the scales, the erythema returning after recovery from the shock. The tenth day after the injection the patient had a chill that lasted one hour, followed by a temperature of 104°. He had a chill every day for seven days. Quinine was then given in large doses, as he seemed to be getting weak. Differential blood count showed numerous malarial organisms and a very marked leucopenia. A hundred white cells could not be found in one slide. There seemed to be a marked improvement in the skin condition. The erythema and most of the scaling had disappeared except from the knees down, the original site of the disease. It is now ten days since the last chill and there is noted a continuous improvement. I am sorry not to be able to report longer observation on the effect of this treatment. Malarial treatment was given with the idea that benefit might be derived from the supposed increase in the phagocytosis and endothelial stimulation in the internal organs like the liver and spleen.

A third case is reported. Mr. W. H. S., age 54, gave a negative past history. Nothing was found in his occupation or history to throw any light on the etiology of the disease. The eruption began on the legs, and in about two months he had a generalized eruption characteristic of chronic exfoliative dermatitis.

This case at all times was a severe eruption and at no time during the course of treatment was there the slightest evidence of any improvement. He lived 18 months, gradually getting weaker, and except for the skin condition ran the typical course of a cardiorenal disease. Various forms of treatment were tried, without appreciable success. I shall mention only certain findings and attempts at treatment. A dead tooth was removed and a culture of *Streptococcus veridans* was reported. The same organism was reported in the stool. A vaccine was made from this organism and given to the patient over a period of two months, without any reaction. The blood count showed 85 per cent hemoglobin, 20,400 white cells, 55 per cent polymorphonuclears, 30 per cent small lymphocytes, 3 large lymphocytes, 1 transitional, and 1 basophils. Subsequent blood examinations showed no evidence of lymphocytosis. In bed with free elimination and soothing applications the blood tests were usually near normal. Thirty small lymphocytes was the largest per cent found at any time. No malaria was found. The feces contained a considerable amount of undigested meat fibre. There were no amebas nor ova. In stained smears, small rods predominated. Large diplococci and chain cocci were present. The basal metabolic rate was plus 55. There was a marked general adenopathy, especially in each groin, which I took to be secondary to the inflammatory process. A lymph node was removed and examined. The adenopathy increased rapidly in the beginning of the disease, and with the initial blood count a diagnosis of lymphogranulomatosis was made. The adenopathy did not increase further and near the end was even less severe. Three days before death the erythema disappeared, the skin appearing practically normal, except for slight scaling. At autopsy the findings were those of nephritis and myocardial failure. There was no evidence of tuberculosis. The following is a detailed report of autopsy material by Dr. F. D. Weidman, of the University of Pennsylvania, who very kindly consented to examine the material:

NECROPSY

Clinical diagnosis is pityriasis rubra Hebra.

No details of the history were submitted. From the photographs the patient was a man of 50 years or more, highly emaciated, showing marked inguinal adenopathy. Dr. Allison stated that dermatologically it was a case of universal erythrodermia. He is anxious to know whether the sections from autopsy show evidence of tuberculosis, leukemia, or disease of the lymphatic system.

Microscopic Description of the Liver.—Two sections are submitted; they are radically different.

Section 1.—Under the serosa (peritoneal) there is a heavy infiltration, in one place, of red blood cells. The fibrous tissue around the lobules is moderately in-

Fig. 2
Case 3, W. H. S.

creased, and moderate numbers of lymphocytes are found infiltrating it from place to place. Adjacent to the bile ducts it is sometimes possible to distinguish a few polymorphonuclears. Furthermore, in those places where the capsule is thickened the tissue is frequently loosened as by a high grade of edema in which plasma cells and polymorphonuclears are added to lymphocytes, which predominate. There is no fibrin. The arteries and veins in the perilobular region vary. In general the veins are overdistended with blood and in one case the vein is hugely distended and occupied by fibrin and polymorphonuclears. In general, the arteries are not sclerosed. The bile ducts are slightly increased in numbers, but otherwise they appear normal. The parenchymal cells in the centers of the lobules are loaded with pigment and are more or less atrophic. While their cytoplasms are granular, their nuclei are large and rich in chromatin, as though attempting regeneration. Within the blood sinusoids, again, rather numerous polymorphonuclears are encountered, but there is none of the extensive accumulation of lymphocytes such as is witnessed in leukemia.

Section 2.—The picture here is that of an extreme grade of cirrhosis and differs so much from the preceding section that one wonders how the two could come from the same subject, unless this cirrhotic process was a localized one. Thus, the peritoneal surface is indented and lumpy in the most approved hobnail fashion. It is markedly thickened. The perilobular fibrous tissue is similarly tremendously increased. Spindle cells and lymphocytes infiltrate richly, and everywhere there is a high grade of adenomatoid hyperplasia of the bile ducts. A larger artery shows extreme thickening of the intima and some of the smaller ones show fibrosis of the media in addition. Parenchymal cells are heavily loaded with fat (classical seal ring effect). Where this is not the case, the cells are large, fused, but still maintain a definite clear-cut nucleus. The blood sinuses are almost entirely obliterated, both in the areas of fatty change and the ones with cloudy swelling.

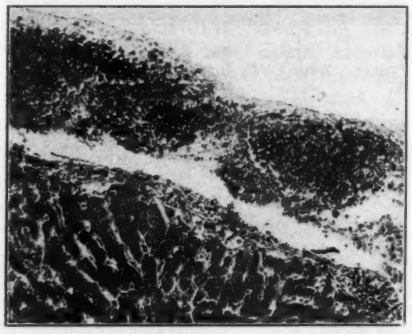

Fig. 3
Liver. Subperitoneal exudate.

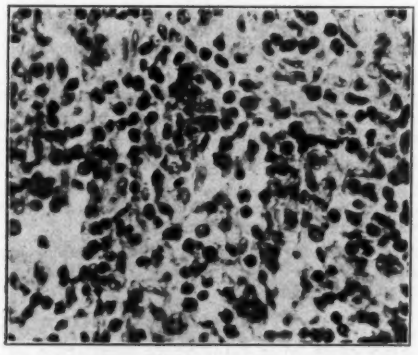

Fig. 4
Spleen. A fair proportion of the cells are polymorphonuclears.

Spleen.—The fibrous tissue is increased both in trabeculae and in the finer reticulum of the pulp. Arteries show universally a thick hyaline intima. Over rather extensive areas the splenic pulp is autolytic. In one or two places clusters of bacteria are discovered which are not, however, bordered by any special leukocytic infiltrations to indicate ante mortem invasion. The writer believes that they are post mortem invaders, considering that autolysis was evidenced in the spleen and also some of the other organs. While lymphocytes dominate the picture in some parts of the pulp, that is, in the splenic nodules, polymorphonuclears are uniformly and generously distributed in all other parts of the section. The splenic nodules themselves are rather inconspicuous.

Lymph Node.—A small lymph node is included in the loose areolar tissue adjacent to the pancreas, but it is so small that it does not furnish any valuable information. There is, however, a larger one adjacent to the cirrhotic liver. In it the cortical follicles are no longer recognizable. The reticulum of the pulp is definitely fibrosed, and there is a hyperplasia of capillaries recognizable in it. Much golden-brown pigment is present from place to place, both intra- and extracellularly. Large numbers of desquamated and hyperplastic endothelial cells are intermixed with the lymphocytes; polymorphonuclears are practically absent.

A larger and independent section of lymph node exhibits an extreme thickening of the capsule, which sends robust fibrous trabeculae downward into the parenchyma. Indeed, these are so large and numerous as to impart a splenic appearance to the tissue. The order of changes here is precisely the same as in the foregoing, except that the medullary sinuses have become largely obliterated secondary to the vast increase of fibrous tissue.

Suprarenal.—The fat in the surrounding areolar tissue exhibits a high grade of "fat atrophy." From place to place, loose infiltrates of lymphocytes are discoverable in this areolar tissue. Blood vessels are highly congested here, and the red blood cells take on such a basic cast that they might be mistaken at first sight for lymphocytes. The cells in the different zones have a normal appearance; there is an abundance of vacuolar material in the pars fascicularis and of chromaffin pigment in the medulla.

Pancreas.—Part of the peritoneal serosa is submitted, underlaid by a thick layer of fatty areolar tissue. Lymphocytes are rather richly infiltrated into the more superficial levels and occasionally a polymorphonuclear or two may be discerned. Plasma cells are also present. The tissue immediately under the serosa is looser

than that elsewhere, as though edematous. The pancreas itself is heavily fibrosed. Lobules are definitely separated from each other by fat and hyperplastic fibrous tissue; the latter extends also into the lobule between the individual acini. The acinar cells themselves are small; their granules stain intensely pink. There is no important lymphocytic infiltration of this organ proper. The islands of Langerhans are numerous, of good size and may be regarded as normal in appearance. The larger ducts appear small. The smaller arteries exhibit marked hyaline thickening of the intima, but the larger ones appear normal.

Skin.—On the whole, the epiderm is thin, averaging not more than eight to ten layers of cells. The interpapillary pegs extending from it, however, while narrow, are definitely elongated, but always to comparatively uniform and not extreme distances. The stratum corneum is not thickened. The prickle cells, while obviously hyperplastic in these elongated pegs, are certainly not notably edematous or otherwise abnormal. Likewise, the basal cells appear practically normal.

Corium.—The fibrous tissue of the papillae is of a definitely more sclerotic type than normal, but there are no immediate infiltrations of round cells. At one or two places in the subpapillary region there are clusters of lymphocytes, but by and large this is a most unexpectedly recessive phase of the tissue; in the case of the largest aggregation, most of the cells are lymphocytes with moderate numbers of polymorphonuclears intermixed. Sweat glands are numerous, but not obviously abnormal. The subcutaneous fat exhibits "fat atrophy."

SUMMARY AND DISCUSSION

The subject had probably been dead forty-eight hours or more before being autopsied, as indicated by early autolysis in the spleen and bacterial invasion. Furthermore, the peritoneal tissue over the liver and elsewhere stained very poorly. The patient probably died of intercurrent infection, as indicated by the extensive polymorphonuclear infiltration of the spleen and the obvious low grade peritonitis exhibited over the liver, spleen and pancreas. A high grade arteriosclerosis of the smaller vessels, at least of the viscera, is in evidence, together with a definite sclerosis of the pancreas, liver and spleen. In the case of the liver there was at least one focus of particularly severe fibrosis; whether residium from an old abscess or granuloma the writer is unable to state.

The lymphatic system, to which attention is particularly directed in this case, does not show the features of a leukemia. The splenic nodules are not large, and untoward numbers of leukocytes are not present in the liver capillaries. At the same time, neither tuberculosis nor other specific granuloma was in evidence. The skin is a surprise in the case; the major factor in the sample submitted is the sclerosis of the papillae. Hyperplasia of epidermal cells and of round cells farther down are comparatively insignificant. It is difficult to understand how much tissue changes would be responsible for the striking clinical expressions described for this patient.

PATHOLOGICAL DIAGNOSIS

Liver.—Biliary cirrhosis (local); fat infiltration; cloudy swelling.

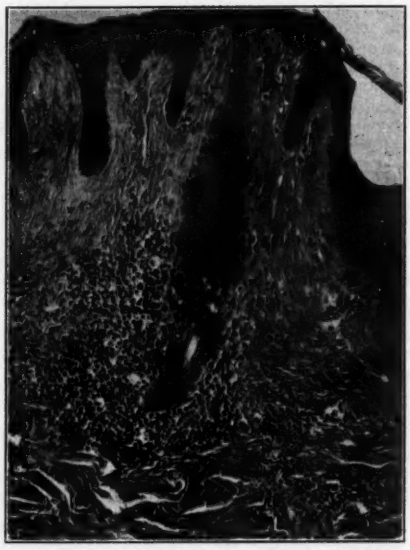

Fig. 5
Skin. Round cell infiltrate in subpapillary region.

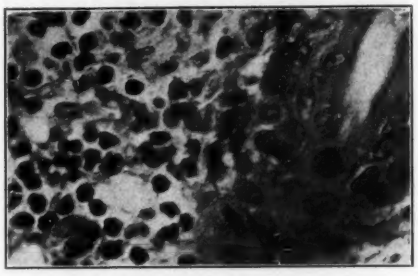

Fig. 6
Skin, cell details. Few polymorphonuclears and more lymphocytes. Portion of hair follicle at right.

Spleen.—Chronic interstitial splenitis. Autolysis and post mortem bacterial invasion. Acute infiltrative (leukocytic) diffuse splenitis.

Pancreas.—Chronic interstitial pancreatitis with atrophy of parenchyma.

Lymph Nodes.—Acute, diffuse, hyperplastic lymphadenitis. Chronic fibrous lymphadenitis.

Skin.—Sclerosis of papillae. Mild epidermal hyperplasia. Local perivascular round cell infiltration of subpapillary region.

SUMMARY

Five cases of a fatal acute dermatitis in infants are reported as a severe form of impetigo. It is suggested that Ritter's disease, bullous im-

petigo and pemphigus neonatorum are the same, different only in severity. It is further suggested that such cases are not exfoliative dermatitis, but a severe infection destroying the skin.

Three cases of chronic exfoliative dermatitis are reported. The first is an allergic patient originally sensitive to velvet beans, who has developed a chronic exfoliative dermatitis which has persisted now for three years, with only slight improvement. The second case developed from a chronic eczema, which varied with the season, and was thought to be allergic. This case was given malarial treatment with some improvement. He had all the symptoms of the cases reported as lymphogranulomatosis, but so far the findings referable to these conditions have been negative. The patient is rapidly losing ground and the prognosis is grave. The third case was more acute, spreading from the original lesion on the legs over the entire body in two months. The patient lived eighteen months. Death was due to toxemia.

It is believed that these three cases are toxemias of possibly different origin, maintained after the original irritant has been removed, by an abnormality in the liver. The work of H. W. Barber on urinary protease is important in this connection, and it is suggested that such cases as here reported be investigated along this line in the future.

CONCLUSION

In the light of the present knowledge of the etiology of generalized erythrodermias it is believed to be unwise to attempt to place all cases under the known etiological headings, and, therefore, the disease entity pityriasis rubra of Hebra of unknown etiology should be retained.

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DISCUSSION (*Abstract*)

Dr. Walter J. Highman, New York, N. Y.—Dr. Allison selected for his subject what seems to me to be one of the vaguest and most involved themes in dermatology, dermatitis exfoliativa. A skin inflammation is evidenced by redness, swelling, blistering, crusting and scaling in varied combinations and stages, modified by site, distribution, the number of the lesions and their nuances of color, shape and thickness. These variations determine the differences upon which are founded our beliefs in individual syndromes and the choice of descriptive names. Dermatitis exfoliativa really means scaling skin catarrh, but we have gotten the habit of applying the term especially to universal scaling with redness, to the group also called the erythrodermas.

The term is not applied to a given entity, but to a group of conditions which may be tabulated as follows:

(I) Idiopathic
  (1) Pityriasis rubra (Hebra)
  (2) Dermatitis exfoliativa (Wilson-Brocq).
  (3) Erythroderma scarlatinoide (Brocq)

(II) Congenital
  (1) Ichthyosis, when inflamed
  (2) Erythroderma congenitale desquamativum
  (3) Dermatitis exfoliativa neonatorum (Ritter)
  (4) Erythroderma desquamativa neonatorum (Leiner)

(III) Symptomatic
  (1) Drugs: arsenic, bismuth, gold
  (2) Related to the lymphoblastomas, mycosis fungoides, Hodgkin's disease, leukemia.

(IV) Consecutive. Diffusion of:
  (1) Psoriasis, lichen plavius, lichen accuminatus, parapsoriasis, pemphigus foliaceus, after measles or scarlet

(V) Infective. Bruusgaard's case of tuberculosis of the skin

Since pityriasis rubra (Hebra) has been widely associated with tuberculosis, and since Bruusgaard's case is tuberculous, the circle is completed, although the former type is rather a tuberculide than anything else, if it be related to tuberculosis. In short, the entire group appears to be symptomatic and the class called "idiopathic" is so designated chiefly because even less is known of the nature of its members than of the other conditions.

Humanity is prone to forget its problems unless they are restated from time to time. That Dr. Allison found no reason to ally his case to mycosis simply shows that not all unexplained exfoliative dermatitis need be lymphoblastomatosis. His patient died of a general metabolic disturbance not yet brought into relationship with dermatitis exfoliativa by any writer, although the relationship may exist.

Dr. Lee McCarthy, Washington, D. C.—I should like to ask the presentor if he considers exfoliative dermatitis as a possible indication of malignancy. I have had two cases in the last four years in which the usual causes could be ruled out. After several remissions and relapses both of these cases died of carcinoma of the ovary.

Dr. Allison (closing).—The object of this paper is to present a case of pityriasis rubra of Hebra of unknown etiology as an argument against those who classify such conditions under a known heading, particularly as granulomas.

SAFETY PIN IN THE DUODENUM: CASE REPORT*

By LAWRENCE W. LONG, M.D.,
Jackson, Miss.

Because of the relative rarity of lodgment of foreign bodies in the duodenum and because of the type of foreign body in this instance, the following case is reported:

R. R., age 27 months, a white female, was brought to me from out of the city because she was choking and breathed only with difficulty. She had not been blue. Her mother had taught her to assist her when she changed her diapers by handing her the safety pins from the bed. While so doing, on May 13, 1931, she had picked up two pins at one time, had given her mother one and had put the other into her mouth. She was thought to have swallowed it and was coughing so that the family thought that she had gotten it into her "windpipe," as they expressed it. A careful examination at the office failed to reveal the pin in the mouth or the oro-pharynx as far down as the fingers could reach. She was removed to the hospital and in the meantime the choking sensation had been relieved spontaneously. X-ray examination revealed the safety pin open and in the stomach. Because anything that will pass into the stomach will usually pass out without much trouble, the family was advised to take the child home and to feed it with agar-agar and shredded cotton as well as the bulky foods, but was warned to give no cathartics. This case was followed every two or three days and we made a number of roentgenograms. Because we wished to locate the pin exactly, the child was given barium by catheter into the stomach and x-ray plates were made. The pin was located in the first portion of the duodenum. On June 6, the mother noted that the child seemed to be having some pain after eating in the mid-epigastrium and would hold that region with her hands. A further check showed the pin in the same position as previously (*Fig. 1*). On June 7, the patient was operated upon under amytal and ether anesthesia after the thymus had been thoroughly studied. The abdomen was opened by a high right rectus incision and the pylorus located. The open pin was felt in the duodenum at the junction of the first and the second portions. The duodenum was opened with a longitudinal incision, the pin grasped with a pair of forceps on its open point and the forceps were pulled gently, but the pin could not be removed. After sponging away the bile and looking at the pin it was seen to be hooked into the mucosa with the point down. It was then turned with two forceps and the angle of the pin caught and the pin removed from the area in which it was hooked. It was found to be very much worn and tarnished and of the shade of old brass worn bright in various places, though it was nickel color when swallowed. The area at the angle of the pin was worn bright, as though it had been polished with a buffer. The intestine was closed partially, transversely, in hopes that there would not be any resulting constriction at this point. A rubber tissue drain was left at the base of the wound. The child did not vomit at any time and made an uneventful recovery. She was discharged from the hospital on the eighth postoperative day.

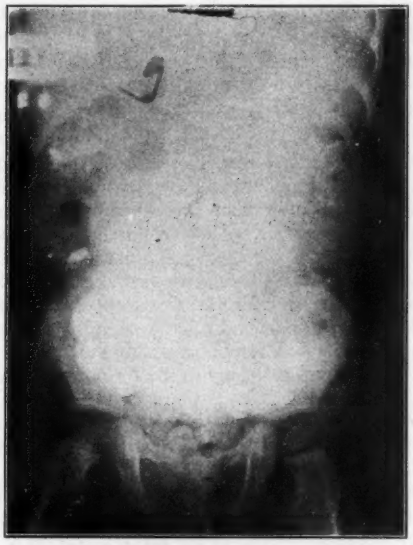

Fig. 1—Showing position of open pin the day previous to operation.

Fig. 2—Picture made with pin in position by adhesive tape in fifth postoperative week.

On the fifteenth postoperative day the patient was brought to the office, the wound had healed well and she was on a full soft diet. July 10, she was seen and had recovered her normal weight (*Fig. 2*). A follow-up revealed no disturbance or deformity and the child seems well and strong.

Thanks are here expressed to Dr. E. B. Van Ness for the work and time spent in the x-ray laboratory, and to Dr. S. H. McLean for his kind assistance in this case.

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*Received for publication July 23, 1931.

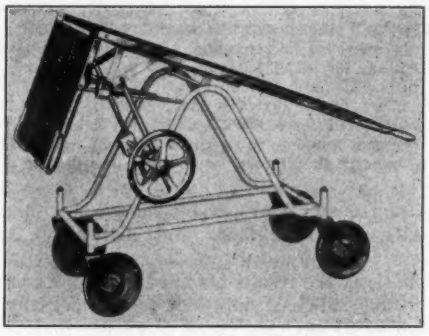
DESCRIPTION OF CARRIER FOR SPINAL ANESTHESIA PATIENTS*

By H. A. GAMBLE, M.D.,
Greenville, Miss.

It is generally recognized that one of the most important factors incident to the use of spinal anesthesia lies in the maintenance of the Trendelenburg position. It is illogical to maintain this position during an operation and after its termination to place the patient in a horizontal position on a carriage for return to the ward, where he is again placed in a bed with the foot elevated.

In order to eliminate this period incident to moving the patient from the operating room to the ward, we had designed and made for us a carriage in which the Trendelenburg position could be maintained while moving the patient.

The construction of this carriage is simple, the body consisting of a bed and a frame with two arched supports mounted on four wheels, with a ratchet arrangement for elevating and lowering the head.



During the past year we have used this carriage regularly and believe that the maintenance of the Trendelenburg position while transporting the patient from the operating room to the ward, gives an added element of safety to spinal anesthesia.

The photograph of the carriage is self-explanatory.

*Received for publication August 20, 1931.

END RESULTS IN ROENTGEN RAY TREATMENT OF ACNE VULGARIS*

STUDY OF 247 CASES

By LLEWELLYN WILLIAMS LORD, M.D.,
and
JAROLD E. KEMP, M.D.,
Baltimore, Md.

In the discussion of the masterly paper by J. C. Michael on the roentgen ray treatment of acne vulgaris, read before the American Dermatological Association in May 1927, the view was expressed that follow-up work along these same lines should prove of considerable value in presenting the true facts as to results in the use of x-ray in the treatment of this rather obstinate disease.

Having a fairly large series of cases treated within the past six years with the technic varying only slightly from that of the former reporters, we felt that corroboration of their findings and possibly the developing of a few new facts might be brought out by a fairly intensive study of these cases. For a period dating from January 1, 1922, to December 31, 1928, 406 patients with acne vulgaris completed treatment with x-ray. These were communicated with and 247 responded, the majority of them being seen personally and the results evaluated by examination.

Michael's report covers very thoroughly the literature up to the time his paper appeared. No further article has since appeared. The reader is referred to his report for complete discussion of the literature. We have prepared a composite table of the results obtained by those men who reported actual figures and which will be used later in comparing with the results obtained by our technic.

METHOD OF TREATMENT

Two main departures from that employed by former authors should be brought to the attention of the reader. All the former workers carried the x-ray treatments along until the patient had received at least 10 doses or a minimum of 2¼ skin units even though the skin had apparently been cleared by a smaller number of exposures. Further, no local application was reported to be employed while the patient was being exposed to the x-ray, except by J. J.

*Read in Section on Dermatology and Syphilology, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

Eller, who stated that he had used an astringent lotion without deleterious effects.

Corrective measures for relief of general conditions were, of course, employed by us. The series was further divided (entirely by chance) into two equal groups, in one of which the diet was carefully regulated. In the other, no reference to diet was made, or it was not followed. These two groups comprised patients with all types of acne, the only difference being that with those treated earlier diet was not stressed, while in the group treated from 1927 on, the diet was considered more seriously. The technic used was weekly exposure to ¼ skin unit of unfiltered x-ray. This was given to each cheek of the patient if the process was seen to be worse along the sides of the face. If, however, the forehead, nose and chin seemed to bear the brunt of the disease the exposures were given to the full face. When the process involved all parts of the face equally the treatments were alternated, one week the patient receiving treatments to the cheeks, and in the alternate weeks the treatment being given to the full face. One departure from the treatment which was outlined by the former reporters was the stopping of x-ray immediately on clearing up of the condition. An astringent lotion was used, the formula of which is as follows:

Sulphur precipitate	12	per cent
Powdered camphor	1	per cent
Powdered tragacanth	1¼	per cent
Lime water	50	per cent
Rose water q. s.		

It was employed in all cases. It was our experience that no deleterious results followed this in any case. Occasionally following the fourth or fifth exposure to the x-ray a mild degree of erythema was produced accompanied by a sensation of dryness of the skin on the part of the patient. We have every reason to assume that this is produced by too free use of the lotion rather than by the ray, and when this occurred the lotion was stopped for a week and then used at wider intervals. Further, if this erythema was noted, or if any evidence of ephilide formation appeared, two layers of chamois were interposed between the patient's face and the x-ray tube. With these precautions we are able to report that in no case were untoward results obtained. In addition to the measures already mentioned, the individual lesions were opened carefully with the von Graefian cataract knife and properly evacuated at least once a week. If the patient developed a relapse following the completion of treatment as outlined, in almost all cases some method other than x-ray was employed to relieve this, only 12 of 63 relapses receiving further x-ray.

COMPARISON OF FORMER REPORTS

A brief reference to the literature and a glance at *Table I* will reveal the results obtained as reported in the literature.

TABLE I

	No. of Cases	Cured or Greatly Improved	Question as to Relapse	Per Cent
Hazen and Eichenlaub, 1921	170	87	37	51 or 72.9
Crutchfield, 1923	96	85		90
Howard Fox, 1923	191	158		82
McCafferty and McCarthy, 1925	70	62		88
Michael, 1927	191	124		65
Total	718	516	37	71.8

Hazen and Eichenlaub in 1921 reported 87, or 51 per cent, of patients cured or greatly improved in a series of 170 patients treated. They have a further group of 37 patients which they class as "question as to relapse." If this group is included in the cured or greatly improved, a percentage of 72.9 is reached. E. D. Crutchfield in 1923 reported 90 per cent cured in 96 cases. Howard Fox also in 1923 reported 82 per cent in a series of 191 cases either cured or greatly improved. McCafferty and McCarthy in 1925 reported 88 per cent cured in a group of 70 cases. J. C. Michael reports an ultimate result of 86 per cent in 191 cases.

Unfortunately, for a true comparison with our results, those of Hazen and Eichenlaub, and Michael only are of value. Those of Hazen and Eichenlaub are results obtained from one course of x-ray. Michael, however, reports actually a result of 65 per cent cured or greatly improved following one course of x-ray of a minimum of 2¼ skin units. Inasmuch as few of our patients received further x-ray in case of relapse, the results obtained by our treatment can, therefore, only be compared with results of other workers during their first course of x-ray. As these figures, therefore, limit us to the reports of Hazen and Eichenlaub, and Michael, we see that the first mentioned authors report from 51 to 73 per cent cured or greatly improved, depending on whether their group "question as to relapse" is or is not included. Michael reports

a cure or greatly improved in 65 per cent of his series.

RESULTS

Of the 247 patients treated who responded to questionnaires sent out, 184 (74.5 per cent) reported a complete cure or that they were greatly improved. Sixty-three (25.5 per cent) had relapses. These relapses are divided into two types, mild and severe: 31 (12.6 per cent) developing mild, 32 (12.9 per cent) developing severe relapses. By the mild type is meant a definite recurring of comedones with occasional papule formation of sufficient severity to allow the patient to feel that the results were not entirely satisfactory and to require further mild measures for relief. By a severe relapse is meant a true return of the disease not necessarily in so severe a degree as that which the patient presented on the original consultation. This designation of "cured or greatly improved, and relapses" is the same as that employed by Michael. Those classed in Hazen and Eichenlaub's reports as "question as to relapse" would probably fit in with what we term mild relapse.

Table II presents the results arranged according to the age of the patient. Former observers reveal that the age rather than the type of the disease plays an important part in the ultimate prognosis, relapses being more common in young patients, particularly during the pubescent period, than in persons beyond 25 years of age. We found, on the contrary, that there was very little difference in the results of treatment between the patients under 18 and those between 19 and 25. If anything, the results favored slightly those below 19 years of age. However, in the period of life during which the disease naturally is on the wane our results are more in accord with other observers and show a much smaller percentage of recurrence.

Table III shows the results obtained, depending upon the type of the disease which the patient presented. By *Type I* is meant what is classed as acne superficiale; by *Type II*, typical acne vulgaris; by *Type III*, an extremely severe or indurata type of acne. As expected, the results obtained are best in *Type I*, where a percentage of 91.1 is found. *Type II* gives the next best results with 122, or 75.8 per cent, while the greatest number of failures is found in *Type III*, with 21, or 51.2 per cent, cured.

Table IV reveals the effect of diet in two approximately equal series. It was found that in those in which diet was regulated carefully

TABLE II

Age	Number	Type			Cured		Relapse			
		I	II	III	No.	Per Cent	I	II	Tot.	Per Cent
0-18	85	19	53	13	63	74.1	12	10	22	25.9
19-25	107	16	75	16	76	71.0	13	18	31	29.0
26 plus	55	10	33	12	45	81.9	6	4	10	18.1
Total	247	45	161	41	184	74.5	31	32	63	25.5

TABLE III

Type	Number	Cured		Relapse			Per Cent
		No.	Per Cent	I	II	Total	
I	45	41	91.1	3	1	4	08.9
II	161	122	75.8	22	17	39	24.2
III	41	21	51.2	6	14	20	48.8
Total	247	184	74.5	31	32	63	25.5

TABLE IV

	No. of Cases	Cured		Relapse	
		No.	Per Cent	No.	Per Cent
Diet followed	124	97	78.2	27	21.8
No diet or not followed	123	87	70.7	36	29.3
Total	247	184	74.5	63	25.5

the percentage of cures was definitely higher than in those in which diet was not stressed.

Table V reveals to our minds a point which we believe should be brought out quite strongly. It is definitely a departure from the technic advocated by former authors, but substantiates Michael's suggestion that he doubted the value of prophylactic treatments. It has been the practice in the past of most dermatologists to carry on the exposures to the x-ray until a minimum of at least 2¼ skin units has been given. This constitutes at least 10 exposures to the roentgen rays. In our series of cases, as has been mentioned previously, the treatments were stopped immediately following the clearing up of the acne. In this way we have a variation in numbers of treatments from five to eighteen. In the preparation of this table a most singular fact was brought out, namely, that the less x-ray required to clear the condition the greater the chance the patient had of being permanently cured. We have arbitrarily divided this group

TABLE V

No. of X-Rays	No. of Cases	Cured		Relapse		Group Totals		
		No.	Per Cent	No.	Per Cent	No. Cases	No. Cured	Per Cent
5	8	8	100.0	0	0.0			
6	11	10	90.9	1	9.1			
7	15	12	80.0	3	20.0			
8	38	34	89.5	4	10.5	72	64	88.9
9	17	12	70.6	5	29.4			
10	38	30	79.0	8	21.0			
11	21	18	85.7	3	14.3			
12	39	28	72.1	11	27.9	115	88	76.5
13	15	8	53.3	7	46.7			
14	16	7	43.8	9	56.2			
15	8	4	50.0	4	50.0			
16	13	8	61.5	5	38.5			
17	7	5	71.4	2	28.6			
18	1	0	0.0	1	100.0	60	32	53.3
Totals	247	184	74.5	63	25.5	247	184	74.5

into, first, patients who received 5 to 8 exposures, an amount which had hitherto been considered insufficient to be included in reports; second, those who received 9 to 12 exposures, which is usually considered the average number of treatments necessary to effect a cure in acne; and third, those receiving 13 to 18 exposures, which comprises a group which proved particularly recalcitrant to treatment. It can be seen at a glance at the percentages that 88.9 were cured in *Group I;* 76.5 in *Group II;* and 53.3 in *Group III.* This is overwhelmingly in favor of *Group I* and overwhelmingly against *Group III,* with approximately the average number of relapses in *Group II.*

COMMENT

One of the notable points of this study is the large number of relapses, comparatively speaking, which occurred following the treatment of acne by x-ray, although our figures compare quite favorably with those of Hazen and Eichenlaub, and Michael. For ultimate cures these figures, of course, cannot be compared with the other authors, inasmuch as our patients were not treated by x-ray when they developed relapses. Our final figures are considerably higher than the 74.5 per cent revealed, but as other methods were used they naturally cannot be quoted as obtained by employment of the roentgen ray. Another noteworthy feature, which was hinted at in Michael's comment, is the fact that the less x-ray necessary to effect eradication of the eruption the more likelihood of its permanence. It should be brought out that the more severe types of acne do not always necessitate the longest courses of treatment. A large number of cases of the second type responded very promptly to a small number of treatments and in a considerable percentage of the superficial type it was found necessary to continue treatments beyond the average for the group. While a good proportion of the cases classified as *Type I* did respond to a small number of exposures, it must be stressed that this type did not entirely make up the group that responded satisfactorily to 5 to 8 treatments.

The effect of diet as brought out in the two series leads us to believe that diet does play a certain part and should, therefore, be controlled.

The effect of age as a prognostic point is probably of some importance, although our figures do not bear out the findings of others. We find a considerably greater chance of permanent cure in older individuals.

The presence of internal disorders undoubtedly plays some part in the causation of relapses, as is brought out definitely by Michael. Unfortunately, we have no figures bearing upon this particular phase of the treatment, especially as it relates to the presence of internal disorders in those who were cured. It was found, however, that there was a fairly high percentage of constipation, digestive disturbance or focal infection, and in three cases active pulmonary tuberculosis, complicating a large number of those who relapsed. Menstruation also was found to influence unfavorably the course of the disease during treatment, and in those who relapsed menstrual symptoms were often prominent. Generally the recurrence of the disease appeared within the first eight months after cessation of treatment.

SUMMARY

Of the 247 patients treated with roentgen ray 184 (74.5 per cent) were cured or greatly improved by one course of treatment, the number of exposures varying from 5 to 18. Relapses occurred in 63 (25.5 per cent) of cases.

(2) In the greater majority of those patients in whom relapses occurred methods other than x-ray were employed to effect relief. Our results cannot, therefore, be compared with the

final results of the authors who have reported on x-ray for acne in the past.

(3) Our technic varied from that of most of the workers in that an astringent lotion was used routinely, and we are able to report that in no case did untoward results complicate the picture.

(4) The age of the patient, as far as prognosis as to relapse is concerned, is a possible factor; the older the patient, in general, the less likely the possibility of relapse.

(5) It was found that the less x-ray treatments necessary to effect complete eradication of the disease, the more likelihood of a more permanent cure resulted. This is definitely against the theory of prophylactic x-ray treatments following relief of symptoms as a means of preventing recurrences.

(6) Regulation of carbohydrate intake of the patient is felt to be of some value in relief of the disease.

(7) The evacuation of pustules and comedones at least at weekly intervals is of great importance in the care of the disease and should be stressed.

(8) Although our results in the treatment of acne with x-ray do not promise a 100 per cent of cures, we feel that x-ray is the best single agent available for the treatment of the disease, and when it is used in conjunction with a restricted carbohydrate diet, "acne surgery," and application of an astringent lotion, it promises the patient more than any other method at present available.

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DISCUSSION (*Abstract*)

Dr. F. J. Eichenlaub, Washington, D. C.—After going over carefully the figures in Dr. Lord's paper, I find nothing with which I can disagree.

My experience with respect to the number of treatments required to clear a case has been approximately the same as his. With respect to the end results, the more quickly the case responded to treatment and the fewer treatments required to clear it up, the less likelihood there was for the patient to have a relapse. For some time now I have been doing the same thing that he has been doing, and stopping treatment when the case cleared up, a procedure which I believe Dr. Pusey suggested to Dr. Hazen and me some eight or ten years ago, and which I have found to be satisfactory.

The only additional suggestion that I have to make regarding the use of x-ray in acne is the possibility of smaller doses. For the past six or seven years, since we have been subject to numerous x-ray suits in Washington, we have been afraid of x-ray. We have been trying to keep the amount of x-ray given down to a minimum. And partly as a result of this, I have been using only one-eighth of a unit once a week in these cases instead of one-fourth of a unit. Comparing those cases that had been given the quarter units previously with those in which we had used only one-eighth units, so far as I was able to determine, while the initial improvement was a little slower with the one-eighth unit, it really required about the same number of exposures to clear them up. As this reduces the amount of x-ray given by one-half, I would suggest that others try this dosage.

Dr. J. L. Kirby-Smith, Jacksonville, Fla.—On looking back over twenty-four years' experience, with the use of x-ray for the treatment of skin diseases, and especially for the treatment of a common disease like acne, I would like to go on record as being somewhat opposed to that measure as a routine treatment. Just recently I had a patient in my office who had been given an eighteen-course treatment for acne the year previously and had recently received four more in another city by a well known dermatologist. Since she was coming to Florida, she was referred to me for additional treatments. Naturally under the circumstances I refused to treat her with x-ray, as the skin already showed some signs of overtreatment.

Acne is curable. This we all know. In fact, these patients eventually recover from their disease without any treatment. We should be very cautious in using x-ray.

Dr. H. H. Hazen, Washington, D. C.—During the past four or five years I have collected statistics on 111 patients with a radiodermatitis in whom it was possible to approximate the damaging dose or doses. In this series of cases were 12 patients who had never shown a preexistent erythema despite the fact that this had been searched for at weekly intervals. Two of these patients had developed telangiectases on a total dosage of less than 3 units distributed over a period of two years; the majority of the other patients had received a total dosage of between 4 and 5 units. The patients who developed telangiectasia on 3 units were those with a dry skin. In the past the teaching has been that telangiectases cannot develop without a preexistent erythema, but that is certainly not true. The study of these cases sets a very definite total dosage which is safe to give over a period of years. It naturally follows that no one should treat a case without ascertaining the total amount of previous dosage which the patient has had. This is said to emphasize the remarks of Dr. Kirby-Smith that patients who run from one physician to another are in the greatest danger.

In many instances telangiectasia did not appear until four years had past. Again we have been led to believe that these lesions invariably appeared within one year. I should like to make the definite suggestion that the acne patients with a dry skin should never receive a total dosage of over 2½ units or 3 units; and the patients with a normal greasy skin should not receive over 4 units. A patient with an excessively greasy skin might tolerate 4½ units with safety. I am proposing a definite limit to the amount of treatment which any patient can receive.

Because of the tendency in children of 14 to 15 years to relapse after one x-ray course I believe that it is wise not to use x-ray in the young if it can be avoided, and it usually can by means of diet, ultraviolet treatment, arsenic and stimulating lotions. Even the ordinary run of cases can be cured without resorting to the x-ray. In the cases which do not recover as a result of such procedures we are usually able to keep down the total amount of x-ray given to about one-half of what we formerly employed if we give a preliminary course of ultraviolet.

When the x-ray is used the dosage is 1/6 unit at weekly intervals.

Dr. Walter J. Highman, New York, N. Y.—What follows from everything you have heard, including the paper of the speaker, is that x-rays are valuable in the treatment of acne if they are used with all due consideration for everything we know about the roentgen ray as a therapeutic agent, including its dangers. In other words, we should use the roentgen ray as we do drugs, bearing in mind its physiological and toxicological action.

I agree with Dr. Lord's closing remark that the x-ray is the best single agent we have in the treatment of this disease. In relapses a great many of the older methods of treatment may be used to advantage. Vleminckx's solution and other agents that work well may be applied as substitutes for the x-ray. Or, by using fewer x-ray exposures, filtered, as is done in Europe, a varied and efficacious plan of treating acne exists.

I would like to take issue with my friend, Kirby-Smith, whose fervor and altruism I always admire. If we were a group of cardiologists he would not arise and say that digitalis is a poor drug because some people use it badly. I have seen cases of acute dilatation of the heart caused by improper use of digitalis, and still digitalis is a valuable drug. And I believe x-ray is as good in the treatment of acne as digitalis is in the treatment of heart disease.

After all, we are thinking in terms of men who know how to apply therapeutic agents, and not in terms of people who, not knowing what the signals are, run by them.

Dr. I. R. Pels, Baltimore, Md.—We should be very conservative with reference to what we tell patients. Only too frequently are they told that they will be cured, or the dermatologists speak of "cure" among themselves. It is advisable in outlining treatment for a patient not to guarantee a cure or use the word "cure." One should also call attention to the possibility of relapses and to failures in treatment. We all know from papers like these that we are getting failures. We realize that we cannot today predict what will happen in the future with acne patients. We all know that the relapses are sometimes shocking to our sensibilities; and I feel that a paper of this type and the discussion which it has evoked should give us more incentive to determine just how much roentgen ray dosage, as a general rule, can be given or should be given as a conservative thing to the average patient.

Dr. Harry M. Robinson, Baltimore, Md.—It is hardly necessary for me to go on record as believing the roentgen ray is very effective in the treatment of acne. We already know that. And I am certain that if a patient comes to us with acne and after a careful questioning we find that there has been no roentgen ray administered, we shall include this readily in our treatment. But I want to know what to do in those patients (and there have been many who have come under my observation) who, after having received roentgen ray therapy, return with a relapse of acne. What do you do in the indurated types of acne, in which it is my experience that x-ray does very little good? There is surely something besides mere mechanical therapy, and I think it would be wrong to impress the average dermatologist just entering into a specialty with the idea that in x-ray he has the cure-all for acne, especially as other things besides x-ray are often necessary to obtain a good cosmetic result.

Dr. J. Richard Allison, Columbia, S. C.—The primary object in the treatment of acne is to improve the looks of the patient. I am convinced that ¼ dose of x-ray given at weekly intervals, extending over more than three or four doses without rest periods, in the majority of instances causes permanent changes in the skin. At the present time I use ¼ of a dose weekly for three treatments, and then ¼ of a dose every two weeks if needed. We must remember that a dry, wrinkled skin may be more objectionable than the acne.

Dr. J. C. Michael, Houston, Tex.—Ten years ago we were perhaps a little over-enthusiastic about the x-ray. And today, judging by the present discussion, the pendulum is swinging the other way and some of us are becoming over pessimistic. It is astonishing to hear that the x-ray should be abandoned because of its possible dangers. The answer to this is that the dangers are non-existent if the x-ray treatment is given by an experienced physician. X-ray is dangerous only in the hands of those who do not know how to use it properly. The present paper is valuable because it produces exact, statistical information of the results that can be obtained in acne by x-ray therapy. In the main, Dr. Lord's results conform with those obtained by me and published several years ago. Minor differences in our results need not be discussed. I think we can conclude from the published experiences of the x-ray treatment of acne that in it we have a very effective method, certainly the most efficacious in our possession at present, but one in which we must recognize certain limitations.

Dr. Lord (closing).—I want to stress the importance of the employment of the von Graefian cataract knife for the opening of the comedones and pustules each week, or at more frequent intervals while the x-ray is being given.

Since we studied this group of patients and discovered the better results that are obtained among those who responded promptly, we have made a practice of stop-

ping x-ray at twelve exposures and instituting some other form of therapy if the cure of the condition is not complete. We feel that if the patient is going to respond to x-ray he will probably do so promptly, and a continuation beyond the above number subjects the patient to definite risk without giving him sufficient promise of cure to warrant it.

PRESENT DAY PROBLEMS OF YELLOW FEVER*

By HUGH S. CUMMING, M.D.,†
Washington, D. C.

Except in reminiscence, the average physician rarely gives a thought to yellow fever. No doubt some believe that the disease has been almost eradicated and that it will soon disappear from the entire world; but it is by no means near extinction. There is a vast reservoir of yellow fever in west Africa; the disease still persists in certain parts of Brazil; and in 1929 it reappeared in Colombia. It is not only possible but extremely probable that, on account of increased and more rapid means of intercommunication, particularly increase in travel by airplane, yellow fever will reappear in many former endemic centers and even spread to countries never before infected, unless the strictest vigilance is maintained to prevent it.

The virus of yellow fever remains undiscovered. This unknown but living entity, when first it gains access to the blood of human beings, produces yellow fever in most adults, often resulting in death. In children, and also in many adults, the virus of yellow fever may be present and complete its life cycle in the body without producing recognizable manifestations of its presence. This fact gives rise to large numbers of "missed" or unrecognized cases of the disease.

Until recently, it was believed that a single mosquito (*Aedes aegypti*) was alone responsible for the transmission of yellow fever and that in the absence of this species, which does not breed in ground water, the disease could not be propagated. Then, too, it was frequently believed that this insect would not fly more than about 200 meters. We are now told that there are 13 species of mosquitoes that can convey yellow fever, and that *Aedes aegypti* will travel from 400 to 1,000 meters; that, under laboratory conditions, the virus of yellow fever may be passed from one mosquito to another; and that some of the newly discovered vectors breed in ground water.

Certain species of monkeys develop yellow fever when bitten by infected mosquitoes, and laboratory cases have occurred in human beings in which infection by mosquitoes could, apparently, be entirely excluded, suggesting infection by contact.

A very successful biological test has recently been devised whereby we can be sure that a given individual has or has not, at some time, suffered from yellow fever, and this test holds good in positive cases after a lapse of many years since the attack.

Efforts are still being made to immunize against yellow fever with, as yet, varying and unsatisfactory results.

It is hardly possible at this time to evaluate our newer knowledge of yellow fever or to express it in terms of prophylaxis and control. However, it is not believed that yellow fever is ordinarily contagious; and it is doubtful whether the transmission of the disease from mosquito to mosquito is an important factor in rapidly propagating the disease, though it may be in maintaining its existence. It is still a question whether vectors which breed in ground water are a serious epidemiological factor on this continent; but we cannot ignore them. I venture to say that the susceptible human (or animal) host is a necessary link in the continued existence of yellow fever in spite of the apparent demonstration of the infection of one mosquito by another.

To sum up the effect which this newer knowledge of yellow fever may have in combating the disease, it may be said that, while the new discoveries enable us to combat yellow fever more effectively, they reveal to us the fact that our goal of complete extermination is, apparently, a far more formidable task than we were led to believe a few years ago.

The prevention of the spread of yellow fever and its eradication can no longer be regarded as the individual affair of the nation in whose territory the disease exists; it is a matter of interest to the entire world. The presence of yellow fever in one country is the immediate concern of all countries within striking distance of the disease and, for humanitarian reasons, the

*Read before Third Congress of the Pan American Medical Association, Mexico City, Mexico, July 27, 1931.

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collective concern of all civilized nations. There must be no retrogression nor relaxation of effort in the struggle to control, and eventually to exterminate, this dangerous disease. On the contrary, there should be a forward, a continuous, a persistent attack on every lurking focus until yellow fever is annihilated, even though it should require decades, yes, centuries, of effort to accomplish this result.

Inasmuch as an attack of yellow fever confers lasting immunity, it seems possible that we may some day be able to immunize against this disease, and it is to be hoped that research workers will continue their efforts in this field as well as in other directions.

The most important problem of yellow fever with which we, as sanitarians, have to deal at the present time is two-fold in character, namely: first, to keep yellow fever out of territory that is not now infected; and second, to exterminate the disease wherever it exists. In order to secure the means of accomplishing these results, the world must not be allowed to forget the havoc that yellow fever has caused in times past, nor must it be allowed to forget the fact that this disease still remains for us a very potential danger, capable of destroying life and of paralyzing commerce, if not kept within bounds.

In order successfully to combat yellow fever, we must first know where it is. It is, therefore, the solemn duty of all nations to investigate faithfully every outbreak of disease, however small, that in any way resembles yellow fever. It is a nation's duty, too, when the disease is found, immediately to report the fact to other nations, an obligation which has frequently been assumed by international treaty, an obligation as binding now as in former years, and one which involves the integrity of the nation.

In connection with the reporting of yellow fever it may be said that not infrequently it has happened that the presence of this disease has been overlooked. It may be accepted as an axiom, I think, that if only occasionally a case of yellow fever is reported, it must be true that there are many cases that are not recognized. Perhaps the most of these are in children, but we know now that the disease may be overlooked in adults as well. A resort to the biological test by means of blood surveys, as devised recently by workers of the Rockefeller Foundation and others, should be made whenever circumstances seem to indicate the existence of hidden foci.

When a nation is honestly reporting its cases of yellow fever and striving to control the disease, the health authorities of other nations must not allow themselves to be stampeded into enforcing unreasonable quarantine measures; they should discourage undue and exaggerated publicity in the daily press and, while taking reasonable precautions to protect their own people, they should limit such precautions to such measures as may be necessary to keep out the disease; commercial relations should be interfered with as little as may be consistent with safety.

So long, however, as yellow fever remains in the territory of any country, other nations with infectible territory must necessarily exercise the right to quarantine against those places where the disease exists. Quarantine measures which afford full protection today may be found to be wholly inadequate tomorrow, depending on the appearance of new foci and the development of new and more rapid facilities for intercommunication. The necessity for quarantine measures against yellow fever increases with proximity to the focus of infection, with the extent of the infection, and with rapidity of travel. Ports and places in many parts of the world that were formerly weeks apart by ordinary means of communication are now within a few days of each other by airplane.

Time does not permit me to go into detail in discussing quarantine measures against yellow fever. These will depend in general on whether persons may pass from infected areas immediately, on foot, by animal transportation, by automobile, by rail, by ship, or by aircraft.

In order to prevent the introduction of yellow fever from one country into another, infected persons must be prevented from passing into infectible territory, whether they be in the incubation stage of the disease or in the period of concealed or unrecognizable attack, or they must be held in quarantine until their blood is no longer infective for vectors; also, common carriers, such as vessels and aircraft, must be free from infected vectors on departure, or they must be freed from such immediately on arrival.

In actual practice, the foregoing requirements assume the detention of exposed persons under perfect protection at the port of departure (a difficult procedure and one that is useless when not properly performed) or the completion of the infective period under mosquito-free conditions en route, or its completion at the place of destination.

Vessels must lie at safe anchorages or must be freed from vectors at the port of departure, or this must be done at the port of arrival. If there may have been infected vectors on board en route, the personnel must be detained.

Aircraft must remain in vector-free aerodromes at the place of departure or they must be similarly freed from vectors at the place of arrival and the personnel held.

These measures are the substance of protection and seem to constitute substantially the framework of quarantine procedures. It will be left to your imagination to work out the details and complete the structure. I may add that quarantine measures should not be so rigid as to paralyze international commerce, and we should bear in mind that our object is a maximum of protection with a minimum of restrictive measures. The work of extinguishing yellow fever from endemic centers is our greatest task, and it is, at the same time, our final goal.

In spite of the possibility of the direct passage of the virus of yellow fever from mosquito to mosquito, I think we may still assume, as a working basis, that, in order for endemicity in yellow fever to exist, the following factors must be constantly present, namely:

(1) The causative agent of the disease, that is, the virus of yellow fever;

(2) Functionally active vectors (*Aedes aegypti* mosquitoes); and

(3) Human beings (or closely allied animal species) susceptible to the disease.

This being true, in order to eradicate yellow fever from endemic foci it is necessary to eradicate yellow-fever-bearing mosquitoes, or at least to reduce their number to a degree incompatible with the spread of the disease. An *Aedes aegypti* index of 5 per cent is usually taken as the upper limit of safety in pronounced endemic centers—that is, in areas where there are very few nonimmunes other than newborn or very young children.* In more populous epidemic centers or places where there are relatively long intervals between outbreaks, and consequently a much larger number of persons who have never had yellow fever, the consensus of opinion of experienced sanitarians is that an index of 1 per cent may be regarded as the maximum of safety if the disease is to be controlled promptly. In fact, in such areas the nearer the index approaches zero, the more satisfactory the results will be. Experience has shown that it is not usually practicable to control the human carrier or victim of the disease even for the few days during which he is infectious. Experience has also shown that it is not feasible to exterminate any species of insect by attacking only the adult members. For these reasons it seems logical to resort to two principal and three auxiliary measures for the eradication of yellow fever. These are as follows:

Principal Measures.—(1) Careful clinical and biological (laboratory) surveys to determine the existence of yellow fever infection; (2) effective work in the prevention of the breeding of yellow-fever-bearing mosquitoes, particularly *Aedes aegypti.*

Auxiliary Measures.—(1) The screening of dwellings in general and especially prompt and early screening of the house occupied by actual or suspected victims of the disease; (2) the destruction of presumably infective adult mosquitoes; (3) the screening of all buildings in which human beings sleep.

No attempt will be made here to describe the method of making blood examinations in surveying communities to determine the presence of yellow fever. It is sufficient to say that the blood of persons who have had yellow fever, even when years have elapsed since the attack, will protect susceptible monkeys against inoculation with the virus of the disease. There is also a difference in the reaction of white mice inoculated with yellow fever virus and given serum from a person or animal that has had the disease, and other white mice which have been inoculated with the virus but which have not received the protective inoculation of immune serum.

An adequate continuously running water supply is of the greatest value in enabling departments of health to abolish the artificial containers in which *Aedes aegypti* breed. In the absence of such a supply, resort must be had to thorough, continuous, and effective screening of such containers as are indispensable and the abolition of those that are not.

There are some workers who would dispense with two of the auxiliary measures mentioned, namely, the screening of yellow fever patients and the destruction of adult infected mosquitoes. They object to attempting to screen patients on account of the difficulty of discovering all cases,

*In quasi-epidemic rural areas having a sparse population, an index of 2 per cent may be regarded as the maximum for the satisfactory control of the spread of the disease.

particularly when in the infective stage. Objection is also made to the inconvenience of attempting to destroy infected adult mosquitoes in homes.

While universal screening is by no means indispensable to success in combating yellow fever, there can be no doubt, I think, of the desirability of general screening on as large a scale as possible, whenever this can be effectively done. Persons have been known to live in yellow fever endemic areas for years without contracting the disease when occupying sleeping quarters adequately screened against mosquitoes.

In conclusion, may I again appeal to the entire medical profession, to the layman, and particularly to the business man, whose commercial interests are threatened, not to allow interest in the subject of permanent eradication of yellow fever to be lost. Universal cooperation is vital to success in this great undertaking.

VITAMIN G IN ROOT AND LEAF VEGETABLES*

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Although the existence of vitamin G has been generally recognized for several years, very few data have been reported relative to its distribution in vegetables.[1] Because of the possible relation between vitamin G and pellagra, the author has undertaken the investigation of its distribution in common food materials.

Authorities are not in agreement as to the etiology of pellagra, but it appears at the present time quite probable that vitamin G, or some factor associated with or a part of vitamin G, is the factor or one of the factors responsible for the prevention and causation of this disease. Notwithstanding what may in the future be learned regarding vitamin G and the etiology of pellagra, it is quite certain that vitamin G is of distinct nutritional importance to man. Sherman and Smith[1] state:

"Vitamin G is evidently a substance of coordinate importance with the longer known vitamins as an essential factor in normal nutrition and deprivation or serious shortage of this substance results in widespread injury to the body. Conversely, the liberal feeding of this substance may be expected to play a significant part in inducing a better-than-average nutritive condition."

The technic employed in the author's laboratory for the determination of vitamin G has been described elsewhere,[2] and will be considered here only very briefly. Healthy young albino rats are taken at weaning age and given a diet deficient in vitamin G, but adequate in

*Received for publication June 18, 1931.
*With the assistance of Mr. William J. Darby.
*From the Department of Physiological Chemistry, School of Medicine, University of Arkansas.

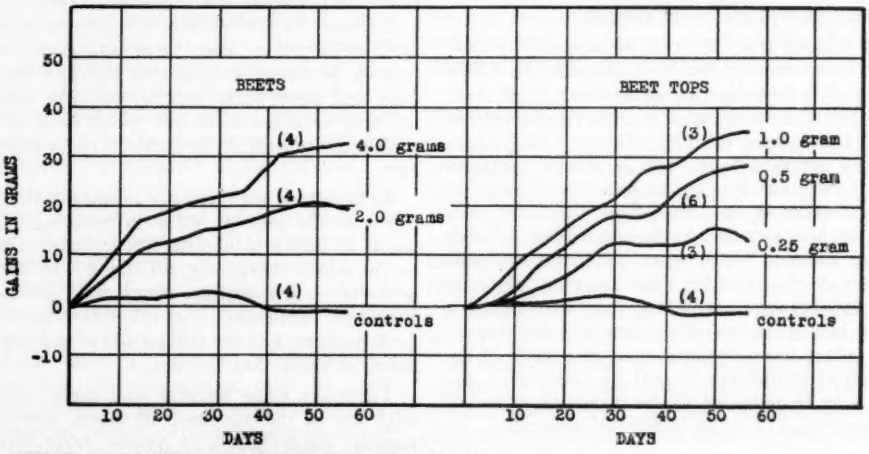

CHART I. VITAMIN G IN BEETS AND BEET TOPS

Average growth curves of rats receiving graded amounts of beets and beet tops after having reached constant weight on a vitamin G-free diet. The amounts at the ends of the curves indicate the daily (except Sunday) amounts of vegetable fed. The numbers on the curves indicate the number of animals used.

every other factor necessary for growth. When the surplus bodily store of vitamin G has been depleted, as evidenced by cessation of growth, each animal is given a daily weighed portion of a substance to be tested for vitamin G in addition to the basal diet. The gain in weight over an eight weeks experimental period is taken as a criterion of the amount of vitamin present in the substance fed.

The root and leaf vegetables tested were local products purchased at retail markets and were fed fresh. As they were purchased fresh at frequent intervals, each assay represents an average of many samples, and may thus be considered a fair estimation of the vitamin G content of the market vegetables obtainable in this city. The growth curves given in *Charts I-IV* show graphically the experimental results.

Bourquin[3] proposed that the daily amount of vitamin G necessary to induce an average

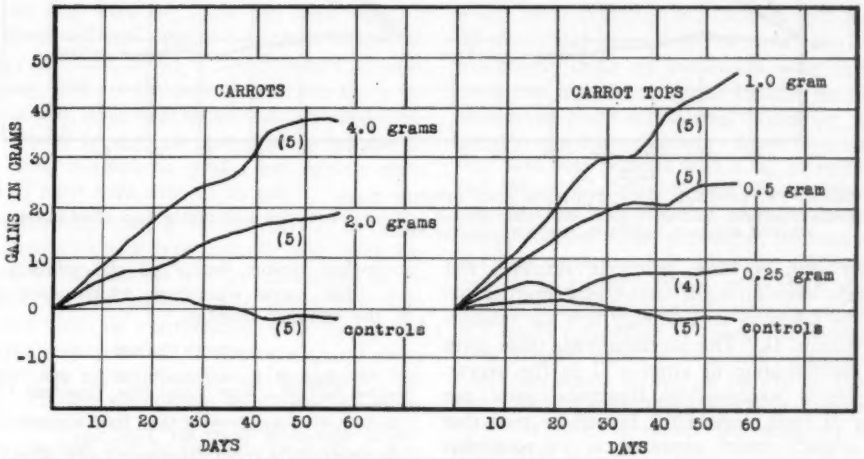

CHART II. VITAMIN G IN CARROTS AND CARROT TOPS

Average growth curves of rats receiving graded amounts of carrots and carrot tops after having reached constant weight on a vitamin G-free diet.

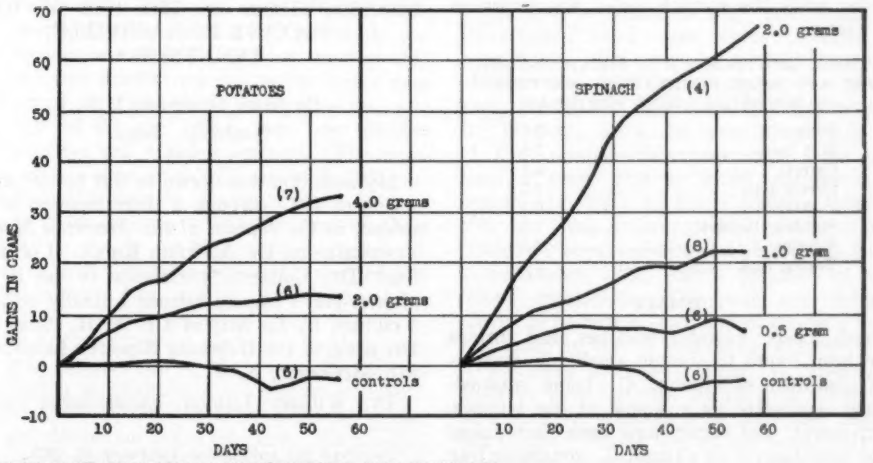

CHART III. VITAMIN G IN POTATOES AND SPINACH

Average growth curves of rats receiving graded amounts of potatoes and spinach after having reached constant weight on a vitamin G-free diet.

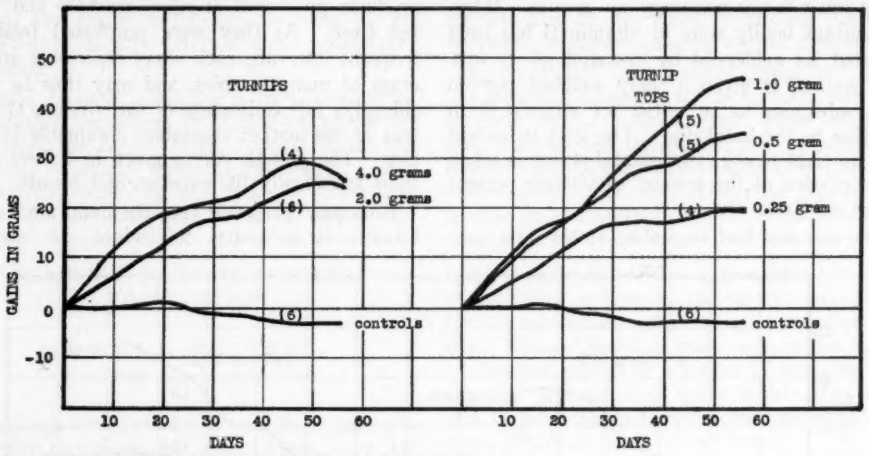

CHART IV. VITAMIN G IN TURNIPS AND TURNIP TOPS

Average growth curves of rats receiveing graded amounts of turnips and turnip tops after having reached constant weight on a vitamin G-free diet.

weekly gain of three grams in standard test animals, over an eight weeks experimental period, be taken as an arbitrary unit for measuring vitamin G. The accompanying table gives the concentration of vitamin G in the vegetables tested, expressed in Bourquin units per gram of fresh vegetable. It will be seen that the spinach tested appeared to be somewhat poorer than the other leaves. This is probably due to the fact that the beet, carrot, and turnip tops were grown in the summer and autumn months, while the spinach tested was grown in the winter.

CONTENTS OF VITAMIN G IN FRESH UNCOOKED ROOT AND LEAF VEGETABLES, EXPRESSED IN BOURQUIN UNITS PER GRAM

Beets	0.5
Beet tops	2.5
Carrots	0.5
Carrot tops	2.0
Potatoes	0.3
Spinach (winter)	1.0
Turnips	0.5
Turnip tops	3.0

SUMMARY

Fresh beets, carrots, potatoes, and turnips have been found to contain small but measurable quantities of vitamin G, being approximately equivalent as a source of the vitamin. Beet, carrot, and turnip tops have been found to be good sources of vitamin G, containing four to six times as much vitamin as the corresponding roots. Winter spinach appeared to be a somewhat poorer source of the vitamin than the other leaves examined, which were grown in the summer months.

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OBSERVATIONS ON THE USE OF B.C.G. VACCINE IN NASHVILLE, TENNESSEE*

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My attention was drawn to this matter in the spring of 1927 through a short mention of the subject in the *Journal of the American Medical Association* by Dr. Adolphus Knopf. I obtained from Dr. Calmette permission to use it, and after a year's correspondence I finally obtained a culture, by the help of Dr. W. H. Park, from Dr. King, of the Hegeman Research Laboratory, Mt. McGregor, N. Y.

Dr. William Litterer, bacteriologist for the

*Received for publication February 26, 1931.
*Read before Nashville Academy of Medicine, Nashville, Tennessee, September 20, 1930.
†City Health Officer.

Tennessee State Health Department, undertook to grow the culture and prepare the vaccine for me. Without his work I could not have undertaken the study. Experiments were carried on in the laboratory for some months and, being satisfied with the results, we began the use of the vaccine on September 27, 1928. I was emboldened to use this additional method of attack against tuberculosis because of the fact that it had been carefully studied for nearly twenty years by Dr. Calmette, of the Pasteur Institute, by the fact that Dr. Park had been using it for about eighteen months by mouth in infants, by the favorable report of Dr. Heimbeck of Oslo, Norway, and by the fact that it was not commercialized, since the culture was furnished without charge to any one prepared to handle it. Not only is there no profit, but only a great deal of hard work attends its use.

In the beginning I advised that it be given by mouth to new-born infants who were exposed to tuberculosis and by subcutaneous injection to older children and adults who were exposed and on examination were found not to have been infected. I soon saw that I could reach only a small number of people in this way. Having confidence in Calmette's statement that it was free from danger, and considering the fact that as children grow older more and more of them develop a positive tuberculin test, I began the testing of groups of children in institutions and schools. At first I used two tests with an interval of a week or more. The first test was made with 0.1 mg. tuberculin and the second test with 1 mg., but finding that only a small number reacted to the larger dose and those very slightly, I decided to use only one test of 0.5 mg. The cases were divided into positive and negative reactors. The negative reactors were given 0.01 mg. of B.C.G. vaccine subcutaneously in the upper arm. In from one to three months in 90 per cent of these children a nodule or cold abscess developed. Most of these abscesses perforated, drained and healed within a few months. An occasional one had to be opened. Some of these lesions required further attention, such as trimming down the granulations, use of the ultraviolet light or application of ammoniate of mercury ointment. Examination of the pus from a small number of cases showed no mixed infection. Six hundred and seventy-five inoculations were made subcutaneously and in from three months to two years 431 were retested with 1 mg. of tuberculin. Three hundred and forty-nine, or 81 per cent, showed a positive test, whereas previously they had been negative. Of those who developed an abscess 95 per cent showed a positive test. Because of the objection to these abscesses, I decided to begin the use of Wallgren's method of giving 0.1 mg. of B.C.G. vaccine intradermally in the upper arm. The intradermal method causes a small local reaction with as a rule slight superficial ulceration and scaling, which latter continues for three or four months. An occasional lesion requires extra care, as was mentioned above in connection with the subcutaneous injection. Up to January 1, 1931, I have given 3,641 intradermal injections, including my own four children. Four hundred and four have been retested with 1 mg. of tuberculin, and 394, or 97 per cent, were positive where before they had been negative. I believe the intradermal method to be preferable, because of the fact that we do not have the large abscesses, the necrosis as a rule does not go so deep, and the positive tuberculin reaction comes on earlier and in a larger percentage of cases. In none of the cases treated have I observed constitutional symptoms which seemed to be due to the vaccine. Out of over 4,000 injections I have seen only five cases in which the adjacent lymph nodes were enlarged. Three of these in the axillary region suppurated and either opened themselves or were opened. All are doing well and there seem to be no ill effects following. So far I can find a record of only one death from tuberculosis in a case where injection had been made. This was in a child three years of age who had been exposed to tuberculosis, but whose tuberculin test was negative. In January, 1929, he was given 0.01 mg. of the vaccine subcutaneously. He developed a small abscess which perforated and healed. In April, he had a positive tuberculin test. In June, he became sick and, after being treated by several clinics and physicians, he died in September, 1929, with a diagnosis of tuberculous meningitis. This was not definitely proven to be tuberculous, and of course no study was made to try to determine whether it was of a human or bovine type, if tuberculous. Since we have frequent deaths from tuberculous meningitis in children who have not received this vaccine, I think we can feel reasonably sure that the vaccine was not the cause of the trouble in this case.

I have also used the vaccine by mouth in 200 new-born infants, few of whom, according to the history, lived in tuberculous surroundings. This work was done in two hospitals and one home for the care of pregnant girls. So far I have had no reason to suspect trouble in any of these infants from the use of the vaccine. I have, however, not been able to obtain an autopsy on any of those who died. Several observers in Europe have made autopsies on children who had previously been given B.C.G. vaccine. The reports that I have been able to review indicate that this vaccine was not held responsible in any case. Not having seen the result of every worker, however, of course, I cannot say whether or not any evidence has been found which seems to prove that this vaccine was the cause of death except the unfortunate incident which occurred in Lubeck, Germany. Investigation of the cause of this accident seemed to point to the fact that some mistake must have been made and that it was not due to the B.C.G. vaccine. We cannot stop the use of vaccination against smallpox, because some cases of encephalitis have been reported as being due to the vaccination, nor can we stop the use of diphtheria and tetanus antitoxins because an occasional death results from

DEATHS OF VACCINATED INFANTS

The following 21 infants who were injected, subsequently died from causes which could not be attributed to the vaccine:

Anthony, Anna Louise: born 2-26-30, died 5-2-30, lobar pneumonia.

Crenshaw, Luvenia: born 5-29-30, died 7-12-30, cause of death unknown.

Carter, Harry Clark: born 2-4-30, died 8-19-30, colitis, convulsions.

Carson: born 6-20-29, died 10-8-29, marasmus.

Croft, Richard G.: born 7-28-29, died 8-21-29, malnutrition.

Dotson, Eddie: born, 3-11-30, died 7-21-30, diphtheria.

Fletcher, Mildred J.: born 6-15-30, died 9-24-30, gastroenteritis, bronchopneumonia.

Garrett, Juanita: born 8-18-30, died 10-22-30, otitis media, bronchopneumonia.

Ingram, Adolph: born 7-19-29, died 10-21-29, gastroenteritis.

Johnson: born 7-29-29, died 8-12-29, dermatitis exfoliativa neonatorum.

Langley, Edith May: born 7-1-29, died 10-6-29, acute ileocolitis.

Maneese, Walter: born 11-2-29, died 6-5-30, ricketts.

Morrow, Dorothy Lovee: born 8-29, died 11-1-30, bronchopneumonia.

Owens, Charles: born 12-2-29, died 12-19-29, bronchopneumonia.

Parker, Geo.: born 6-29, died 11-30, bronchopneumonia.

Poinyter, Lillie Estella: born 12-13-29, died 9-4-30, acute gastroenteritis (contrib.), exhaustion and bronchopneumonia.

Polk, Ann Gay: born 1-9-30, died 6-23-30, diarrhea and malnutrition.

Settles, Martin, Jr.: born 7-28-29, died 8-30-29, congenital syphilis.

Watkins, Charles Edward: born 11-13-29, died 11-22-29, edema of lung (contrib.), asphyxia.

Wilson, Estella Louise: born 9-20-29, died 12-25-29, bronchopneumonia.

Bush, Ruth Elizabeth: born 5-9-30, died 9-21-30, infectious diarrhea.

TABLE I

Number of babies inoculated	294
Number died	21
Died of tuberculosis	0

Condition of those living, see notes.

Condition of babies satisfactory as far as our examinations have gone. X-rays of six babies showed increased density about the hilum and widening of the mediastinum, which was thought to be due to enlarged glands. These babies all seem to be doing well and the x-ray plates seem to give the same picture that was found in a study of 600 babies in Barcelona, Spain.

TABLE II

Inoculations of older children and adults	4679
Died from measles	2
Pneumococcus meningitis	1
Drowning	1
Died from tubercular meningitis	1?

Condition of living, see notes below.

About 15 children show some shadows about the hilum which suggest activity. Some of these we know lived in contact with tuberculosis and others have not as far as we have been able to learn.

One child developed an area of lupus around the point of injection. This is the only one having such a lesion and the only one so far as we know living in close contact with an advanced case of lupus. It seems reasonable to suppose that this infection was transferred from her father to the open area on her arm. Skin specialist who has treated her has pronounced her well.

Another girl was given the vaccine in April, 1930, had a typical local reaction which healed within a few months. She was retested in December, 1930, had positive test and seemed perfectly well. In January, 1931, she developed inflammation of both eyes. In February, 1931, she attended the Pediatric Clinic of Vanderbilt Medical School and her condition was diagnosed as phlyctenular kerato-conjunctivitis of tuberculous origin. This condition has not improved and there is loss of vision. The fact that she has had the vaccine raises the question as to whether it had anything to do with the trouble. In this same Clinic there have been many cases of this condition where the vaccine had not been used. There is no way to prove or disprove a connection.

In addition to the work done by me, Dr. Litterer has furnished the vaccine and directed its use in about 1,500 other adults and children in two colleges and several cities. He has received reports on nearly 1,000 cases that received the vaccine about two years ago. There have been no unfavorable reports with the exception of the development of a few axillary abscesses which healed without any trouble.

their use, nor can we stop the use of the toxin-antitoxin against diphtheria because some one by mistake had injected diphtheria toxin or contaminated toxin-antitoxin. Unfortunate accidents will occur in the use of any well recognized medicinal agent. I am continuing the use of the vaccine by mouth in the new born, though I feel that the intradermal method is probably preferable at this age. Of the small number of babies that I have retested following ingestion of the vaccine about 75 per cent have shown a positive test. Whether it is absolutely essential that a test shall be positive in order to assume the development of immunity is not definitely decided. When the vaccine is used by mouth or by injection it is advisable to remove the patient from contact with tuberculosis for six weeks. However, there are few communities in which this practice can be carried out.

In conjunction with the above treatment by inoculation of B.C.G. vaccine I am making an effort to interest both the families and their physician in the program of early diagnosis and regular supervision and am urging the importance of a careful physical, and especially an x-ray picture of the chest, on all those showing a positive test. By the taking of a careful family history we may unearth the source by which the child became infected and so find many cases not previously reported. In this work the interest and assistance of a number of physicians, hospitals and clinics have been enlisted. I would like to emphasize that this vaccine should not be used unless it is prepared by some one deeply interested, well informed on work with the tubercle bacillus, and willing to stick closely to the detailed instructions laid down by Dr. Calmette. The selection of the cases and the follow-up of both the negative and positive reactors require the greatest care in the keeping of records.

I am aware that there are some men of wide experience in tuberculosis work who are not yet ready to approve this method as a means of prevention. There are many others, particulary in Europe, who have studied this work from an experimental and clinical standpoint who are in favor of it and whose results seem to indicate that it has a definite value.

My reason for carrying on the work is that for many years the presence of an infection with the bovine tubercle bacillus has seemed to give protection against pulmonary infection with the human type. I believe the vaccine is safe if cultured and prepared by a competent man. I believe a stronger immunity will be developed by the use of living vaccine than if the organisms were killed, and that the amount of allergy which develops as a result of the inoculation will develop protective properties which will enable the individual much more readily to combat an infection which might gain entrance to his tissues. If the use of this vaccine is free from danger and has any immunizing value, it should be used on as large a scale as possible so long as every safeguard is practised. If it is conceded that it is free of danger, but its immunizing value is questioned, the amount of associated work carried on in the way of examination of children and young adults, education of their families, and enlistment of interest on the part of physicians will accomplish a great deal in checking tuberculosis. As a result of the great improvement in tuberculosis within recent years, more and more children and young adults are escaping infection. If those who have escaped infection during early life are thrown in contact with open cases of tuberculosis later they are very liable to develop a more rapidly progressive type of disease.

SUMMARY

If the vaccine is prepared by a laboratory man who will follow Calmette's instructions and employ every safeguard, its use is without danger.

In patients inoculated by the intradermal method you may expect the development of allergy in almost 100 per cent of cases.

How much protection this gives and how long it lasts is still undetermined, though some well controlled studies indicate a high degree of protection. Its value can be established only by the accumulation of records over a long period of time.

The method is applicable to groups in schools, institutions, colleges, nursing and medical schools, factories, army and navy, as well as in individual families.

An effort will be made to keep as accurate records as possible of these cases in order that some definite conclusion may be arrived at from our study.

Acknowledgment is here made of the assistance and opportunity given me by the physicians of the City, my own staff, various clinics and hospitals in the City and County, physicians and other officials connected with schools and various institutions and with the local Tuberculosis Asssociation. Without such ready cooperation very little of this work could have been done.

THE EUSTACHIAN TUBE: ITS RELATION TO NASOPHARYNGEAL AND MIDDLE EAR DISEASES*

By EARLE G. BREEDING, M.S., M.D., F.A.C.S., Washington, D. C.

Almost all cases of middle ear diseases, and deafness resulting therefrom, find their entry through the Eustachian tube from some source in the upper respiratory passages, and there seems to be an increasing tendency to aural complications from the acute and chronic diseases commonly seen in the nasal and pharyngeal regions.

The Eustachian tube is the ventilating apparatus for the tympanic cavity or middle ear, and the channel, or passage between the nasopharynx and the middle ear spaces, whereby the equalization of the atmospheric pressure on either side of the tympanic membrane, or drumhead, may be maintained.

Anatomically, the Eustachian tube in an adult is about 36 mm. in length, extending from the upper and anterior part of the tympanic cavity, inward and downward to the epipharynx. The walls of the upper or tympanic end are bony and make up about one-third of the length of the tube. The remaining two-thirds is cartilaginous to the pharyngeal orifice. At the junction of the bony and cartilaginous portions, the tube is quite narrow and constricted. This portion is known as the isthmus. The tube is funnel or trumpet shaped at each end. The walls are lined with mucous membrane, continuous from the nasopharynx. The cartilaginous or pharyngeal end of the tube is lined with ciliated epithelium over a stratum of lymphoid tissue. The ciliae frequently extend throughout the length of the tube and even into the tympanic cavity and sweep, as it were, the secretions toward the pharyngeal opening. It is, therefore, obvious that by any impairment of the function of the ciliae drainage is interfered with and disease of the middle ear results. The lymphoid layer of tissue is much more developed in the child. It often assumes the form of lymph follicles and is sometimes called the tubular tonsil. This is a frequent cause of tubal obstruction. The tube is normally closed at the isthmus and opens only during swallowing or yawning by action of the (a) levator palati, (b) tensor palati, and (c) salpingo-pharyngeus muscles.

If the act of swallowing does not open the tube to admit an interchange of air, the air in the tympanic cavity is absorbed and a partial vacuum or negative pressure results. This negative pressure, in turn, produces a congestion. The blood is drawn to the area, pathological changes in the mucous membrane are the result, and the so-called tubal or middle ear catarrh, with ultimate impairment of hearing is the outcome. Negative pressure also produces a retraction of the tympanic membrane and obviously a disturbance in the articulation of the ossicles. The distressing symptoms of tinnitus and sometimes vertigo are likely to follow from the increased pressure of the foot plate of the stapes at the oval window.

Any obstruction of the Eustachian tube, if not promptly relieved, will prevent the flow of secretions from the tube and middle ear which predisposes the mucous membrane to infection and inflammatory processes. This condition is true in any mucous membrane lined cavities.

Inflammatory changes in the adenoids, tonsils, faucial pillars and the palato-pharyngeal tissues tend to retard and interfere with the action of the tubal muscles. There is, then, an interference first of ventilation and drainage of the tube and middle ear, and microorganisms find their way into the tube. The resistance of the mucous membrane has been lowered and its ciliae cease to function properly. Therefore, growth of the microorganisms and, ultimately, a catarrhal or suppurative inflammation results.

Injury to the tonsillar pillars and tissues of the palato-pharyngeal region resulting from faulty technic during adenoid and tonsil operations, which cause abnormal contractures and adhesions of tissue, often interfere with normal function of the Eustachian tubes. Recalling the attachments of the tubal muscles, one can readily understand how these conditions exist, and how exceedingly cautious and careful the surgeon should be in the performance of any operative procedures in this locality, for permanent injury and discomfort may result from unskilled surgery.

In the fossa of Rosenmuller, a recess just back of the pharyngeal opening of the tube, adhesions are frequently found and they are usually bands formed by retained adenoid tissue. They may cause tubal obstruction by contracture of the pharyngeal opening. Mucus, muco-

*Received for publication November, 1930.

*Presidential Address, Washington Medical and Surgical Society, Washington, D. C., October, 1930.

pus and secretions from post-nasal, and particularly from the posterior sinus infections, are a frequent etiological factor in Eustachian closure. Nasal polypi and polypoid enlargement of the posterior ends of the inferior turbinates are very frequently found to be blocking the opening, and numerous causes such as syphilitic and tuberculous lesions and occasionally malignancy, may be responsible for tubal obstructions.

I have a few times encountered apparently exostoses or hyperostoses of the walls of the tubes which have caused a complete obstruction. An anomalous bend in the direction of the tube is mentioned as a possible cause for obstruction.

Diagnosis.—While only the pharyngeal opening of the tube may be seen, an examination of the drumhead will often reveal signs of tubal closure. The characteristic retraction, the prominence of the ossicle and the absence of the luster of the membrana tympani are all suggestive findings. The pharyngeal end may be examined with a post-nasal mirror, but more accurately with the nasopharyngoscope. By placing the instrument, preferably in the opposite side of the nose from the tube to be examined, one may see plainly the tubal orifice, note the condition of the mucous membrane, note whether the opening is patulous or collapsed, whether it contains secretions or adhesions. Many of the conditions and pathological changes above mentioned may cause tubal obstructions. An accurate diagnosis is practically impossible without the aid of the nasopharyngoscope which can nearly always be passed through one or both nasal passages. Often posterior rhinoscopy is unsatisfactory and but little information can be secured by its use. The use of inflation and the diagnostic or auscultation tube will usually give some information of the degree and character of tubal obstruction.

Treatment.—Having made a diagnosis in a given case, the treatment should be directed to the underlying cause of the obstructive process. If the obstruction should be due to something causing pressure, collapse, distortion or closure at the pharyngeal end, these causes should be corrected. Again, the use of the nasopharyngoscope is indispensable in correcting many of these defects as well as instituting other appropriate therapeutic measures; for a direct view of the tubal opening and all the surrounding structures can be obtained while local treatment is being carried out. As was previously mentioned, the most common form of tubal obstructions are the acute and chronic types of the so-called catarrhal infections. It is generally conceded by most aurists that some form of inflation of the tube is indicated, particularly in the chronic cases, and catheterization seems to be by far the most popular method of inflation. By catheterization the air is forced into the tube at any pressure desired, and by using the diagnostic tube, a fairly accurate idea of the required pressure and condition of tubo-tympanic spaces may be obtained.

"Catheterization of the Eustachian tubes was first attempted by the French Postmaster, Guyot, in 1724, and subsequently performed by Archibald Cleland in 1741. In 1755 Jonathan Wathen treated catarrhal deafness by means of injections into the Eustachian tubes through a catheter inserted into the nose."*

Through the catheter, medication may be applied directly into the tube and tympanic cavity. Bougies for dilatation are also passed through the catheter, and again by using a nasopharyngoscope one may be absolutely sure the catheter is inserted into the opening of the tube and may proceed with inflation, medication or bouginage. These methods of treatment are of paramount importance and if properly and skillfully performed excellent results will follow.

Total obstructions and their locations are easily found with the bougie. Unfortunately, little can be accomplished by treating this condition. Recently Duel has used gold bougies in an insulated catheter through which is passed a galvanic current to the area of obstruction. In repeated applications he claims to have gotten good results. Any form of electrical treatment, however, seems to receive more or less criticism.

In the congestive or simple hyperplastic type of tubal obstruction the bougie usually passes easily. In adhesions and strictures at the isthmus a little force is necessary to pass the bougie past the obstruction, which can easily be felt as the knob at the end of the bougie passes by. In the complete obstructive cases the bougie will pass into the tube for only a short distance, usually not beyond the constricted portion or isthmus. The smallest size bougie is first used. The mucous membrane is easily injured. If large bougies are used and if too forcible attempts are made to pass an obstruction, adhesions or perforations along the wall of tube will result. For this reason, inflation should not be attempted after passing the bougie (unless

*Garrison, Fielding H.: History of Medicine, Third Edition, page 361.

it has passed quite easily), owing to the danger of producing an emphysema of the surrounding tissues. When this occurs a great deal of alarm and excitement is caused to the patient as well as discomfort from the presence of air in the tissues which rapidly spreads to the cervical region, face and eyelids. It is best to wait for a few days before attempting inflation after dilating an obstruction, especially if any effort is made in passing the sound.

I am using the bougie more frequently than formerly, for I feel I am getting results with it that I cannot get with inflation alone. I am firmly convinced also that catheterization is far more satisfactory than Politzeration or any other method of inflation, because by this means the temperature and pressure of the air can be absolutely controlled. The air can be filtered if necessary and forced directly into the Eustachian tubes and not throughout the entire nasal cavities and sinuses. Occasionally a marked nasal obstruction exists which interferes with the passage of a catheter, and if it cannot be passed through the opposite side of the nose and turned over into the tube to be treated, we have to use some of the other methods, unless it is passed up through the oropharynx, a very unsatisfactory method. Any desired medication may be passed into the tube. I have observed prompt and lasting results from applying a weak solution of cocaine and adrenalin in the opening of an acutely inflamed Eustachian tube in the same manner as we relieve a closed nasal passage during an acute coryza.

During the past year, or at least since ephedrine has become popularized and used frequently in upper respiratory diseases, I have used this drug locally in practically all patients seen with both the acute and chronic types of tubal catarrh. The oily solution of ephedrine inhalant, 0.5 to 1 per cent, is the preparation used. It is applied either by blowing four or five drops through the catheter into the tube or by pushing cotton-tipped, twisted wire applicators through the catheter into the tube as far as the applicator may easily be passed. There is practically no discomfort to the patient, especially if the end of the tube is first anesthetized by the application of a 1 or 2 per cent solution of cocaine. The relief of the obstructive or stopped up feeling and frequently of pain and tinnitus, is usually prompt and often lasting. In the acute cases this treatment is repeated daily. In the chronic cases the procedure is repeated every two or three days, gradually lengthening the intervals according to the improvement noted. The results have been so surprisingly gratifying that frequently a patient returning for treatment will ask for the "drops to be blown into the ear." It has certainly proved to me a valuable agent in the treatment of Eustachian tube diseases.

I have been unable to find any mention of the use of ephedrine as above outlined in any of the recent literature.

I believe that if more attention were directed to local treatment at the onset of an acute inflammatory process in the nasopharynx and in the Eustachian tubes the incidence of middle ear suppuration and its complications would be materially lessened. So much for the acute infections.

In the common type of chronic catarrhal otitis media or salpingitis, with closure, both moist and the dry adhesive obstructions, the diagnosis is best determined by means of the catheter and auscultation tube. Inflation here removes the mucus and stimulates the mucous membrane of the tube and tympanic cavity, producing a hyperemia, which further promotes absorption of secretions in the cavity, relieves the usually distressing symptoms of negative pressure and, if tinnitis is present, it is often immediately relieved. Astringents, such as nitrate of silver, tannic acid and iodine preparations, can be applied directly to the walls of the tube through the catheter. Of course, if the obstructive process is so marked that little, if any air enters the middle ear, the bougie should be passed and allowed to remain in the tube for several minutes. This is repeated two or three times a week until the patency of the tube will afford the free passage of air.

The use of other medicated vapors is mentioned in text books for these diseases and many of them I have tried, but in no instance have results been obtained as from the use of ephedrine.

Lastly, a few words about massage and vibrators. There are a number of elaborate machines and apparatus on the market following the use of which wonderful results have been claimed. Many of us have purchased these machines and used them, but in a little while they begin to accumulate dust from disuse and they are eventually discarded. X-rays and most of the electrical vibrators have lost their popularity. There is used, however, by many ear specialists, some simple form of massage of the drumhead, and it is believed that a gentle

pneumo-massage with a small hand instrument is of some benefit following catheterization in producing a mild hyperemia.

In concluding, I wish to emphasize the necessity for a careful, painstaking examination in every case that presents symptoms suggestive of Eustachian tube involvement, either acute or chronic. When the diagnosis is made, appropriate and conscientious treatment should be given. I feel that more serious consideration should be given to localized treatment for relief in the different types of tubo-tympanic obstructive diseases and less to inflations, and the wholesale removal of nasal obstructions, adenoids and tonsils.

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RADIOTHERAPY IN UTERINE FIBROIDS*

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Fibromyomas of the uterus are the most prevalent of all pelvic neoplasms, being especially prone to occur in the colored race. Necropsy records at the Johns Hopkins Hospital showed that 33.7 per cent of all negresses over the age of twenty had uterine fibroids, while only 10 per cent of the white women had them. They are extremely rare before the age of puberty, but occur occasionally after the menopause. A recent analysis by Cohen of 1,000 consecutive cases at the Charity Hospital in New Orleans showed 87.9 per cent in the colored race and 10.3 per cent in the white race. In this series 94.8 per cent were married, but 35 per cent had never been pregnant, which shows a marked tendency to sterility. This would indicate that fibromyomas have a tendency to produce sterility, but that sterility is not necessarily a cause of uterine fibroids. The factors of race, marital status and age in the incidence of uterine fibromyomas lend great support to chronic inflammatory lesions of the pelvis as etiologic considerations. That their development is not dependent upon the sex hormone is indicated by their occurrence after the menopause and in women who have had both ovaries removed.

Hyperpituitarism and hypothyroidism are mentioned by Polak as etiologic factors.

CLASSIFICATION

Anatomically, uterine fibromyomas may be classified as intramural, submucous and subperitoneal. It is probable that all of these tumors originate as intramural neoplasms and some of them in their growth inward or outward become submucous or subperitoneal in type. Fibromyomas are frequently multiple, and are often mixed in type.

For the purpose of clearly outlining the method of choice and the technic in the treatment of these tumors it is necessary to make two general classifications according to age incidence, those occurring before the age of forty and those after the age of forty. From the radiotherapeutic standpoint the following subclassifications will be considered:

(1) Small symptomless fibromyomas found on routine pelvic examinations.

(2) Fibromyomas complicated by active pelvic inflammatory disease characterized by fever and leukocytosis.

(3) Tumors associated with much pain.

(4) Tumors complicated by malignancy of the fundus of the uterus.

(5) Tumors producing pressure that interferes with the functions of the rectum or bladder.

(6) Tumors associated with menorrhagia or metrorrhagia.

(7) Fibromyomas associated with chronic lesions of the cervix demanding treatment.

INDICATIONS FOR RADIOTHERAPY

A review of the literature shows that only about 20 per cent of fibromyomas of the uterus occur before the age of forty. Keene and Kimbrough, in a review of 254 consecutive cases at the Hospital of the University of Pennsylvania, report 81 per cent in the fourth and fifth decades. In the 1,000 cases studied by Cohen at the Charity Hospital in New Orleans the average age was 38 years. However, only 10.3 per cent of these were in white patients and it is generally conceded that uterine fibroids occur at an early period of life in the negro race. Practically all uterine fibroids occurring after the age of 40, except in the presence of definite contraindications, can be treated with satisfactory results by means of radiotherapy if they are treated to the point of an artificial menopause. This treatment is justified at the end of

*Read in Section on Radiology, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

the child-bearing period. Beclere, of Paris, reported successful results in 99 per cent of a series of 300 cases of uterine fibromyomas treated by roentgenotherapy. Neill, in a review of 650 cases treated at the Howard A. Kelly Hospital, stated that 75 per cent of all uterine fibroids are amenable to radiotherapy regardless of whether they are subperitoneal, intramural, submucous, single or multiple.

In the series of cases reported by Keene and Kimbrough 62 were treated by radiotherapy, 50 being treated with radium and 12 with the roentgen ray. Satisfactory results were obtained in 93 per cent of those treated with radium and all the patients treated with the roentgen ray were cured.

Fibromyomas, occurring at any age, associated with potential malignancies of the cervix, should be treated with radium applied in the cervical canal supplemented by deep roentgenotherapy over the uterus and pelvic adnexa. Roentgenotherapy has many advantages over radium in all other types of uterine fibromyomas. The patients are ambulant, the time of treatment is short, and does not interfere with household, social or business obligations, and there is usually little or no post irradiation reaction. Economically considered, the fees charged the patients are less for roentgen than for radium treatment, and there is no hospitalization.

Fibromyomas in patients of any age who are hazardous surgical risks should be treated by radiotherapy. Also, those in whom the surgical procedure would be the removal of the uterus should be treated by radiotherapy, due to the fact that the ovaries soon atrophy after the removal of the uterus. Since roentgen and radium rays have a direct specific effect on uterine fibroids in addition to the effect on the follicular tissue of the ovaries, it is possible to cause a regression of the tumor without producing an artificial menopause. However, one should never assure the patient that such happy results will be accomplished. Fibromyomas associated with menorrhagia or metrorrhagia respond better to radiotherapy than the non-hemorrhagic type. About 75 per cent of all uterine fibroids are characterized by excessive uterine bleeding.

CONTRAINDICATIONS TO RADIOTHERAPY

In view of the surgical mortality, which is from 3 to 5 per cent, a carefully taken history and a thorough examination of the patient should be made before deciding that a definite contraindication to radiotherapy exists.

Small symptomless fibromyomas found on routine pelvic examinations demand no treatment. Patients with these tumors should be kept under observation, as many of the tumors, especially those occurring near the menopause, will disappear without treatment. Fibromyomas complicated by active pelvic inflammatory disease accompanied by fever and leukocytosis should not be treated by radiotherapy. Chronic inflammatory disease of the pelvic adnexa is not a contraindication to radiotherapy. Wood states that laboratory records of the last 150 cases operated upon at St. Luke's Hospital, New York City, show that only 41 were accompanied by chronic inflammatory lesions and that none of them had an acute pelvic lesion.

Tumors associated with much pain, which nearly always indicates the presence of degeneration, infection, torsion of the pedicle of the tumor or pressure on some vital structure, should be treated surgically. Fibromyomas complicated by malignancy of the body of the uterus should be treated surgically because malignancy of this part of the uterus does not produce an early metastasis. However, the incidence of such a complication is less than the mortality following hysterectomy or hysteromyomectomy so that if all fibromyomas excluding the other contraindications previously mentioned were treated by radiotherapy the mortality rate would be less.

Tumors producing pressure symptoms interfering with the function of the rectum or bladder are emergencies and should be treated surgically.

TECHNIC

The technic is divided into three plans, used respectively for:

(1) Fibromyomas in women with normal cervices and in the active child-bearing period.

(2) Fibromyomas occurring in women past the active child-bearing period and in poor surgical risks.

(3) Fibromyomas associated with potential malignancies of the cervix at any age.

Since the roentgen rays have a specific and direct effect on fibromyomas, it is possible to cause a regression of the tumor and control the hemorrhage without producing a menopause. In treating patients in accordance with the first plan the ovaries should be protected by means of sheet lead and the radiation given only over

the uterus. There will, of course, be a considerable amount of secondary radiation that will reach the ovaries, but usually this will not produce more than a temporary amenorrhea.

After the age of 40, and in all poor surgical risks, the routine plan of treatment contemplates a gradual rather than a precipitate artificial menopause and deep roentgenotherapy is not indicated. The anterior and posterior aspects of the pelvis are each divided into two areas covering the uterus and ovaries. Only one area is treated at a sitting, using 180 kilovolts with 0.25 mm. of copper and 2 mm. of aluminum as filters. The distance is 50 cm. and each area is treated for 30 minutes. The treatment is repeated in four to six weeks and usually these two treatments are all that are required.

Fibromyomas associated with potential malignancies of the cervix should be treated by the combination of radium and the roentgen ray. Radium should be applied in the cervical canal and this should be supplemented by deep roentgenotherapy. A combination of radium and roentgen ray treatments in such cases is certainly much more effective than either of them alone.

REPORT OF THE LAST 100 CASES TREATED BY THE AUTHOR

An analysis of the last 100 cases treated shows the age incidence to be as follows:

20-30	5
30-40	22
40 50	51
50-over	22

The average age was 49, the youngest patient 26, the oldest was 73. There were 93 white patients and 7 colored. Ninety-one of the tumors were of the hemorrhagic type and nine were non-hemorrhagic. Three of the patients had hemorrhagic fibromyomas larger than a six months' pregnancy and all of these responded very satisfactorily to roentgenotherapy.

There were 98 cures and 2 failures. The failures were in degenerating submucous fibroids.

CONCLUSIONS

(1) The etiology of uterine fibromyomas is unknown, but their marked incidence during the fourth and fifth decades of life and their prevalence in the negro race justify the assumption that chronic inflammatory lesions of the pelvis are factors in their growth. Endocrine disturbances must be considered as etiologic factors.

(2) A thorough general examination of the patient should always be made to see if there are any contraindications to surgery and to determine the type of operation that would be indicated in each given case. If there are multiple tumors, or if a single tumor is of such size or type that it could be treated surgically only by hysterectomy, surgery is contraindicated. It is generally conceded that, regardless of the age of the patient, the ovaries atrophy within a few years following hysterectomy. A careful pelvic examination should always be made, because it is essential to know the condition of the cervix before the plan of treatment can be determined. The size of the tumor, age of the patient, the presence of menorrhagia, metrorrhagia or pain should be known. Active pelvic inflammatory disease, degenerative changes in the tumor or pressure on vital structures should be determined.

(3) There are few real contraindications to radiotherapy in uterine fibromyomas. Roentgenotherapy is the method of choice in the great majority of these tumors, but cases associated with potential malignancies of the cervix should be treated by a combination of radium and roentgen rays.

(4) Fibromyomas that are painful, infected, or undergoing degeneration should be treated surgically. Subperitoneal fibroids in young women, that can be removed by simple myomectomy, should be treated surgically.

(5) The technic of radiotherapy in uterine fibromyomas depends upon the age of the patient and the condition of the cervix.

(6) "Roentgenotherapy should be administered only by graduates in medicine of adequate training in the specialty of radiology and should never under any circumstances be administered by lay technicians" (Trostler).

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DISCUSSION (*Abstract*)

Dr. M. Y. Dabney, Birmingham, Ala.—I am not an x-ray man, but a gynecologist using radiotherapy sometimes and sometimes surgery for fibroids.

The question of the submucous fibroid with me has been very difficult to solve, because it is hard to diagnose a submucous fibroid unless you are removing the uterus surgically. The tumor may be very small. A diagnostic curettage will rule out malignancy. I have had little success in stopping the bleeding in cases of submucous fibroid. In some cases which are diagnosed submucous fibroid, the bleeding stops. In other cases which continued to bleed after radium was used, I have found a small submucous fibroid that apparently was the cause of the failure of the irradiation.

I should like to ask Dr. Landham if he feels that he can screen the ovaries satisfactorily in using the roentgen ray instead of radium. The ovaries lie so close to the uterus that I should think it would be extremely difficult. I want to know also whether he does a diagnostic curettage in cases of fibroids.

Those of you who make sections of the uterus will find that 40 per cent of the women have fibroids. Now if that is the case, and we know that carcinoma is very common, why may not the fibroid be simply an incidental affair?

Dr. D. Y. Keith, Louisville, Ky.—There are just two points that I should like to talk about, one of which is the present tendency to use radium as a preliminary to surgery. Carcinoma of the body of the uterus is coming to the same place as carcinoma of the cervix. In the *Journal of the American Medical Association* a few weeks ago, in a discussion, Dr. Lee, of Memorial Hospital, said that they have used radium in cases of carcinoma of the body of the uterus as a preliminary to surgery anywhere from three to six weeks before operation. In certain types of malignancy in young women which were positively diagnosed by curettage before radium was applied, they found no trace of malignancy in the body of the uterus at operation. He stated that in the future he did not intend to use surgery on this particular type of growth.

We recently had occasion to look up our records and the average age of our patients with carcinoma of the body of the uterus was 61.1 years. Among patients above 60 years of age there are very few good risks for a hysterectomy.

For a good many years before we had any radium in this locality we had quite a series of fibroids of the uterus, which were treated by x-ray only with very good results. I think practically every one of them was relieved. And in recent years, I should say for the last six or seven, we have treated very few cases of uterine fibroid by x-ray. For most of the patients coming from out of the city the use of radium is the easier procedure. One dose of radium will suffice, and we do not have to ask them to return for future treatment. It is much easier for a patient to receive radium than to keep coming back for the x-ray. The results are quicker, and we believe much more satisfying to both the patient and the surgeon or radiologist.

Dr. M. Y. Dabney, Birmingham, Ala.—I should like to ask the Doctor whether he has gotten much bladder irritation following roentgen ray treatment. When radium is used on the uterus for malignancy, I find there is a tendency to considerable bladder irritation. I have had the misfortune to see more than one case in which stricture of the urinary bladder developed after radium treatment for malignancy.

I do not know how much roentgen radiation is needed to stop bleeding. I should like to know, just as a matter of information, whether any trouble has followed Dr. Landham's use of the x-ray.

Dr. Landham (closing).—As a routine procedure I do not think it is essential to have a diagnostic curettage, but there are cases with only slight enlargement of the uterus in which we cannot differentiate a submucous fibroid, uterine polyp or cancer of the body of the uterus without it.

The incidence of malignancy of the body of the uterus is not nearly so great as the present mortality in the surgical treatment of uterine fibroids. Therefore, if all uterine fibroids that are suitable for radiotherapy were treated by x-ray without a diagnostic curettage the mortality rate would be less than that of surgery.

Incidentally, more has been written on the subject of radiotherapy in uterine fibroids in women near the menopausal age by surgeons than by radiotherapists. Most of the surgeons have advocated the use of radium probably because it was very easy to apply radium in the cavity of the uterus at the time of doing a curettage. However, I am convinced that in the majority of the cases x-ray is preferable to radium in the treatment of uterine fibroids. Patients who are employed make an appointment and are treated during lunch hour, losing no time from their work. They do not have to remove their clothes and are caused no embarrassment. The time of each sitting of the treatment is short.

I have had no patients treated by x-ray or radium who complained of marked disturbance of the rectum or bladder. The bladder and rectal walls should be packed well away from the radium when it is used in the cervical canal. The amount of radiation required in the treatment of uterine fibroids should cause no marked irritation if this is done. I have had a few patients who complained of an irritating cervical discharge following the use of radium.

SUPRAPUBIC PROSTATECTOMY*

By GEO. R. LIVERMORE, M.D., F.A.C.S.,
Memphis, Tenn.

The mortality rate of prostatectomy has been reduced from more than 50 per cent to about 5 per cent. It is claimed that the death rate of suprapubic prostatectomy is somewhat higher than that of perineal, but in the hands of the best urologists there is little difference. I believe the reason for the statistical higher rate for suprapubic is due to the fact that more men use the suprapubic route, because it is easier. More inexperienced surgeons employ it, with consequent higher mortality.

*Read before Alabama Urological Association, First Annual Meeting, Birmingham, Alabama, April 21, 1931.

Regardless of this controversy, I prefer the suprapubic route. I feel that, in competent hands, it is just as safe as the perineal and hence I shall confine my remarks tonight to suprapubic prostatectomy.

As I tell my students, anyone can remove a prostate, but the urologist who prepares his patients for the operation; fits all conditions to suit each individual case; does the operation with the least possible shock; guards against every complication, and finally, is prepared for every postoperative emergency, is the man whose operative mortality will be lowest.

It is ridiculous to publish statistics of 100 cases of prostatectomy without a death, because every surgeon with any experience knows that it would be impossible to do any kind of operation on 100 men, with an average age of 65, without a death. I shall, therefore, not bore you with statistics. Suffice it to say that we should do everything in our power to make our mortality rate as low as possible. With this end in view, I am doing far fewer prostatectomies, especially in the doubtful risks, endeavoring to give relief by some simpler methods, such as the Caulk cautery punch operation or the Collings electrotome.

In preparing our patients for prostatectomy we first put them on urotropin, and then institute decompression regardless of the amount of residual urine. In cases with complete retention or a large amount of residual urine, we pass a soft rubber catheter, drain the bladder, then put back almost as much boric solution as there was residual urine in the bladder, and at each emptying of the bladder thereafter the amount of boric solution is gradually reduced, until the bladder is finally left empty and constant drainage maintained. Any of the decompression devices on the market will be found equally serviceable for this purpose. The blood pressure is taken daily and operation deferred until it is stabilized, as a variable blood pressure denotes a weakened myocardium.

In the March issue of the *Journal of Urology* Seng says:

"Blood pressure observations alone do not form an adequate index of the condition of the cardiovascular system, but do point the way. The man with low blood pressure is not so good a surgical risk and heals sluggishly. A high blood pressure is the least favorable surgical risk."

In the same issue Kretschmer, Woodruff and Bacon state that

"In patients who have cardiac disease, obvious to physical examination, the electrocardiogram can be of little added value in indicating the preoperative risk, but in patients whose hearts are reported normal by the internists, the electrocardiogram may show evidence of myocardial disease."

I agree in the main with the above. We give digitalis and caffeine to raise and stabilize low pressure before operation, and if these fail, we do a suprapubic cystotomy and trust to prolonged drainage to raise it by getting the patient in better condition. Patients with a high blood pressure stand the operation about as well as those with a moderate pressure, but they succumb later from apoplexy, myocarditis or embolism. Why do a prostatectomy and have the patient live only a few months? Make him comfortable with a suprapubic cystotomy and possibly prolonged drainage will reduce his pressure and make him a good risk.

The kidney functional tests must be satisfactory and by satisfactory I mean at least 30 per cent in two hours with the greater percentage in the first hour. For when the greater percentage is excreted in the second hour, it denotes delayed kidney function and the probability of uremia following operation. I have recently seen an article on prostatectomy by a well known urologist who gave the history of two of his cases that had died. In both of them the second hour percentage was larger than the first, and both died of uremia.

The blood chemical findings, too, must be within normal limits. I consider 2.5 mg. per 100 c. c. of blood as the upper limit for creatinine, and I prefer it to be 2 or below. The non-protein nitrogen should not exceed 30 mg. per 100 c. c. of blood, though 25 or below is far safer. There should be a complete blood count, both red and white, and the percentage of hemoglobin should be accurately known. The clotting and bleeding time should also be noted. The 24-hour urine output must be recorded and the ratio of output to intake "checked and double checked."

It is often true that patients whose tests are within normal limits do not seem to be in shape for the operation. In other words, the general appearance is not right. The patient tires easily, he pants after walking to the bath room, is languid, listless, and has to be coaxed to eat. Beware of such a patient, for he is a poor risk. He is the type in which the two-stage operation is a life saver. In fact, in every

doubtful case it is much safer to do a two-stage operation. It is true that the first stage is not devoid of mortality. However, it is far preferable to endeavor to get the patient into condition for a prostatectomy by doing a suprapubic drainage and have him die than to lose him by doing the complete operation at one sitting; for the family will feel that everything was done to get him in shape for operation and prostatectomy will not be held responsible for his death. It is remarkable, too, how much improvement results from prolonged suprapubic drainage and often patients, whose general condition and 'phthalein output were so poor that a suprapubic cystotomy was done to ease their few remaining weeks of life, will be so benefited that a prostatectomy can be safely done and the patients can be restored to a useful and extended life. 0.25 c. c. of combined vaccine (Van Cotts) is given hypodermically one week before operation and in four days 0.5 c. c. is given.

When the patient is in condition for a prostatectomy he is prepared as follows:

He is not told when he is to have his operation until 1½ hours before going to the operating room. He is then given synergistic analgesia, ⅛ grain morphine in 2 c. c. of 25 per cent magnesium sulphate solution deep in the buttock. In one-half hour he is given ⅛ grain morphine and 1/150 grain atropine in the same solution in the same locality, and in another half hour he is given another ⅛ grain of morphine as above. After the second hypodermic has been given, 250 c. c. of 5 per cent glucose and 2 per cent soda solution are given per rectum. He is allowed to take water freely until the first hypodermic is given. When he arrives in the operating room he is calm and drowsy, but perfectly rational. Spinal anesthesia is then administered. We use spinocain and have been much pleased with it and have had no fatalities and few failures. When it fails, ethylene is given and the prostate infiltrated with 1 per cent novocaine.

We make it a routine to cut and ligate each vas before doing a prostatectomy. When a two-stage operation is done the vas is severed and ligated when the first step is done. If a one-stage operation is done it precedes the operation. The usual median incision is made, the peritoneum stripped well upward and the bladder opened as high as possible. The prostate is enucleated by passing the index finger into the internal meatus and pushing it forward to the limit of the prostate. The capsule is ruptured and the prostate shelled out, a Pilcher bag is inserted to control hemorrhage and the bladder closed to a median size suprapubic tube ½ inch in diameter, placed as high in the bladder as possible. We close the bladder with No. 2 plain cat gut around the tube by inverting the edges so as to prevent mucous membrane from being left in apposition with mucous membrane, as this will delay healing of the fistula. The bladder is sutured to the tube on each side, the sutures being placed in the tube 2 inches above the bladder so as to render their removal easy. A cigarette drain is inserted in the space of Retzius. The fascia is closed with No. 2 chromic gut and the skin with silk worm gut, two being inserted through the tube.

The patient is given 31 grains of urotropin intravenously about 15 minutes before the operation is completed and 500 c. c. of saline just before he leaves the operating room. He is returned to his bed with a pneumonia jacket on and warmly wrapped up with his head covered. Five hundred c. c. of glucose and soda solution are given per rectum every 6 hours. His position is changed every 2 or 3 hours. Water and urotropin grains 10 are given by mouth as soon as he can take them and urotropin continued four times a day. If vomiting occurs, or he cannot retain fluids per rectum, he is given a hypodermoclysis of 500 c. c. 5 per cent glucose or saline. His blood pressure is watched and if falling, shock or hemorrhage or both should be combated. If vomiting persists, the blood chlorides and carbondioxide combining power are determined. If the chlorides are 450 or below, 10 c. c. of 5 to 10 per cent sodium chloride solution are given very slowly intravenously.

The Pilcher bag is deflated 10 to 12 hours after operation. Some bleeding usually follows, but as a rule lasts only a few moments. Should it continue, the bag is again filled and replaced. Twelve hours later it is deflated again. Urotropin grains 31 should be given intravenously 12 hours after operation and continued twice daily for 60 hours, or longer if the temperature is above 100.

The patient is kept as free from pain as possible, as I am convinced that pain increases shock and has been responsible for many deaths. This is one of the great advantages of both spinal anesthesia and synergistic analgesia.

Spinal lasts anywhere from 4 to 6 hours and synergistic prolongs the action of morphine. Consequently both are life savers by diminishing pain. I therefore urge the free use of morphine, even combining hyoscine, if necessary, and in that type of patient where morphine excites I use the barbital derivatives, sodium amytal or dial by hypodermic being especially serviceable.

A calomel purge should be given 36 hours after operation, followed by salts and enema the following morning. The suprapubic tube and the bag should be removed after 48 hours, unless there is a tendency to hemorrhage or the patient's condition is not satisfactory. A retention catheter No. 18 F. is put in as the Pilcher bag is removed. In order to avoid any trauma in introducing the retention catheter, we employ the following method:

The catheter of the Pilcher bag is soaked in lysol solution and then cut off near the external meatus. Several extra eyes are cut in the retention catheter and its tip is forced into the end of the cut-off catheter of the Pilcher bag. Traction is now made on the inflation tube and the Pilcher bag removed through the suprapubic incision. As the bag is pulled upward the retention catheter is drawn through the urethra on into the bladder. When its tip is in the suprapubic wound it is detached from the catheter of the Pilcher bag. The tip is then grasped with forceps and by traction on the catheter is allowed to rest on the floor of the bladder. It is then held in place by adhesive strips on the penis and is retained for one week. No irrigation should be done unless the catheter becomes plugged, and then only enough to start drainage. Mercurochrome 2 per cent is poured into the suprapubic wound and a gauze wick lightly packed in it. This should be repeated at each dressing.

We endeavor to get our patients up as early as possible. Therefore, if the condition is satisfactory the head of the bed is elevated after 24 hours, and the following afternoon we get him up in a chair. The retention catheter is removed on the seventh day and on the ninth or tenth a Kohlmann dilator is passed and the prostatic urethra dilated to 32 F. We make it a routine to give urotropin intravenously after any urethral manipulation. If the suprapubic fistula is delayed in healing, a cystoscopy is done to make sure there is no obstruction in the internal meatus or prostatic urethra. Should there be any tags or nodules we destroy them with the Collings electrotome. If the fistula still persists we apply the bipolar current and, if this fails, advise excision and suture.

COMPLICATIONS AND THEIR MANAGEMENT

Hemorrhage.—Primary hemorrhage has been eliminated by the Pilcher bag and the knowledge of bleeding and clotting time.

Secondary hemorrhage may occur any time after removal of the Pilcher bag, even as late as two weeks after operation. It is easily controlled if the Pilcher bag can be replaced, but if healing of the suprapubic wound has progressed too far, then we must rely on a retention catheter. If this fails, the suprapubic fistula should be enlarged and the Pilcher bag replaced.

Infection.—In our endeavor to build up resistance against infection, 0.25 c. c. combined vaccine (Van Cotts) is administered one week before operations, and in four days 0.5 c. c. is given. Urotropin is administered by mouth prior to operation and intravenously at the time of operation, and twice daily for the following 60 hours. Mercurochrome 2 per cent is also injected into the bladder prior to and following the enucleating of the prostate. Should infection occur, 10 to 20 c. c. of mercurochrome 10 per cent in glucose 50 per cent is given intravenously followed by transfusions.

Embolism.—As we do not know the cause of embolism, we are at a loss to prevent it. The Pilcher bag, by sealing up the veins, may have some tendency to prevent it, but it occurs at times, even after the patient is up and about, regardless of what is done.

Epididymitis.—We used to have the usual percentage of epididymitis, about 20 per cent, with a very depressing effect on our patients, but since adopting double vas ligation it has occurred so seldom and then in so mild a form as to be of minor consequence.

Shock.—Preoperative preparation, synergistic analgesia and spinal anesthesia have practically eliminated shock. The fall in blood pressure following spinal anesthesia is usually combated by the ephedrine in the preliminary novocaine skin injection. In fact, we frequently have a rise in blood pressure that requires nitroglycerine to control. Should the pressure fall too low or evidence of shock develop, adrenalin 1-1000 by hypodermic in 10 to 15 m. doses

every 15 minutes usually suffices. We also lower the head of the table.

If there is no improvement or there are signs of cardiac failure, Babcock advises 30 to 50 c. c. of saline with adrenalin 10 to 15 minims intravenously.

PLAY FOR ATTENTION, A KEY TO MENTAL PROPHYLAXIS*

By W. W. Young, A.B., M.D.,†
Atlanta, Ga.

Years ago a great thinker gave expression to a wish. Who does not appreciate this wish of Mathew Arnold:

"Nor bring to see me cease to live
Some doctor full of phrase and fame,
To shake his sapient head, and give
The ill he cannot cure, a name."

General medicine, faced with end results which can be adjusted or altered very little, has long since become dissatisfied with direct therapy alone. With this dissatisfaction the focus of attention has shifted from this type of therapeutic approach to prevention. Study of causative factors involved has made it possible to back track and attempt eradication where the threat is evident. Psychiatry, "the frail sister of medicine," has been the last to alter its viewpoint to fit the needs. Here, too, constantly faced with the difficulties of readjusting end results, the emphasis is being placed upon preventive measures, both social and individual.

Over the platform in the auditorium of a certain denominational assembly ground are written the words, "The Church moves forward on the feet of little children." A large psychological truth is written there and may be paraphrased to read, "Mental sanity moves forward on the feet of little children." An individual's reactions to others are largely determined by his childhood reactions to those in his home. Hence, the set of his future behavior is largely determined by the start which he gets in his early development.

Unlike the young of other animals, the human offspring must live a protected existence for some time after birth. Probably the most important period in the behavior development of the individual is the transition period from the pre-school to the school period. This is the beginning of the weaning process in earnest. The child must go through a transition from almost complete dependence to a beginning of that period of essential independence and self-assertion. At this time the responsibility of the parent is shared by the teacher. For years pedagogy felt it had absolved its obligations by the maintenance of proper classroom discipline and academic education. Today it realizes that emotional education with consequent behavior shares an equal place with purely academic procedures.

At birth the reactivity of the human organism is fundamentally emotional in character. This reactivity is essentially defensive. Before the sexual type existed reproduction occurred by simple fission. Here the individual was the essential and sole factor and only preservation of the individuals could possibly bring about continuity of kind. The thesis here, therefore, is that self-preservation is the phylogenetically older urge. For self-preservation fear or its counterpart is a necessary and fundamental reactivity.

The fear reaction, being fundamentally self-preservative and phylogenetically oldest, manifests itself at birth. On these simple foundations are built up more and more complex reactivities for the preservation of existence. From the moment of extrusion into the world outside the protective environment of the mother's uterus, the least threat to the biologic stability of the human organism precipitates a reaction calling for satisfaction of the emergency needs. These emergency needs are almost immediately met under the average circumstances of life. How quickly the human infant learns more and more complicated procedures for the satisfaction of these needs! As life progresses, however, ordinarily the meeting of the demand becomes more and more retarded on up to the weaning process with the learned reactions of motor activity.

The fear reaction being fundamental and inherent, the human organism from birth is confronted with feelings of insecurity, varying in character and intensity with the economic and intellectual level of the home. For these feelings of insecurity he must find a compensation in some sort of protective mechanism. The symbol of protection is inherent in the

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*Read in Section on Neurology and Psychiatry, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

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parent. Consequently the constant tendency is to play for that attention which will bring the adequate response to neutralize the feelings of insecurity. This starts with the first cry which is a bid to attract those forces which will give satisfaction to the immediate needs.

It is contended, therefore, that one of the inherent reactive tendencies within the organism is "a play for attention." This in turn is the outgrowth of feelings of insecurity which are the immediate resultant of the fundamental and phylogenetically oldest reactivity, fear, and is self-preservative in purpose. End results are gradually evolved from basic beginnings. The emotional habit patterns formed subsequent to birth are basically conditioned. One of the most potent means for conditioning is the satisfaction of biological needs. Given a biological need, that which will bring about its satisfaction in turn results in a conditioning of the individual to that type of behavior whenever the need arises. If this is true, then the most fundamental urge is the strongest of conditioning factors. Hence, accepting the original contention, the fear reaction, expressed through feelings of insecurity in a "play for attention" is the most potent factor in early habit formations with its resultants in adult life patterns.

This is well exemplified in the story of two boys. Sam is the older of two boys. Sam was born with an internal strabismus and a tendency to grow too fast with its accompanying awkwardness. Sam's brother, one year younger, was bright, agile and attractive in appearance. He was always the one noticed by company and was constantly held up to Sam as an example. Consequently Sam felt most insecure in the home. On going to school he found it difficult to compete and was the constant butt of ridicule. This increased his feelings of insecurity in general. One day he spent his lunch money for a sack of candy and, being importuned by his mates, he shared it with them. He discovered immediately that he had won approval and his insecurity was temporarily offset. A few days later he saw a quarter on his mother's dresser. Appropriating this, he bought candy and again shared it. Gradually he became conditioned to this type of defense until he was brought to the doctor to have his "stealing" explained and charmed away. A "play for attention" had been his downfall.

Dan is a bright, vivacious boy, an only child whose father died when he was only three years of age. The widow, bereft of the love which meant so much to her, showered her affections on Dan. He was her constant companion; he even slept in the same bed. His mother being young and attractive, after three years began to be noticed by men. She felt she was missing a part of her youth and began to neglect Dan. Having been accustomed to constant attention and not having cultivated companionships to which he could turn, he immediately began to feel insecure. Men threatened his status with his mother. One evening he went into a rage on being sent to bed when his mother had a visitor. The net result was that the visitor left and the mother went upstairs and to bed with him. Repeating this always brought results. The conditioning grew with surprising rapidity until no one could enter the home without facing one of these rages. The mother could neither receive a 'phone message nor a letter without retailing the content to him. The constant effort was to avoid scenes. Dan had found his means for attracting attention to offset his feelings of insecurity. These cases could be multiplied *ad infinitum*.

The human organism, through a "play for attention," may be conditioned to any form of behavior, socially acceptable or otherwise. Eating irregularities, bed wetting, temper tantrums may be conditioned into the individual by attracting attention and satisfying the inherent urge. From these early beginnings may be built up a long train of subsequent defensive reactions which become more and more involved as life progresses. Given one weak spot in adjustment with its consequent threat to security and there is built up a long train of defensive reactions always attempting to bolster up the ever-crumbling structure whose foundations are built on sand.

Habit patterns should be formed on a positive constructive basis. Here "play for attention" by guidance into proper channels may be a potent factor in proper and adequate adjustments. Making a gradual transition from complete dependence to essential independence, the inherent feelings of insecurity may be utilized as the essential drive to accomplishment within socially acceptable limits. Hence, "play for attention" is a dynamic force which may lead to destruction or to that most necessary of human goals, "the feeling of accomplishment" or satisfaction of biological needs.

It is contended here, therefore, that the fundamental key to behavior disorders lies in "play for attention." This in turn arises from feelings of insecurity consequent upon that fundamental and phylogenetically oldest reactivity, fear. The adult habit patterns have their beginnings in youth. Hence, "play for attention" must be the beginning of the conditionings leading to many types of abnormal behavior.

DISCUSSION (*Abstract*)

Dr. William L. Nelson, St. Louis, Mo.—Dr. Young has said that in most instances a feeling of insecurity is responsible for adverse behavior.

I think it is unfortunate to conclude that any one cause is operative in our behavior. It is fatal to progress to assume a certain determinism in regard to behavior. One of the just criticisms of the early strivings of psychoanalytic work was the preconceived notion that the motivations in psychic conflict were resident in the field of erotic feeling.

In studying human behavior we should not be limited to some isolated phase of human stimulation and reaction. While fear plays a very prominent role in the stimulations of individuals, as indicated even in early life in Watson's experiments, there are other emotions that influence behavior just as strongly. Our attempt to understand behavior must embrace an inquisition into the various aspects of motivation giving cognizance to the many experiences and degrees and character of emotion that are implicated in shaping our lives.

Dr. Geo. B. Lake, Chicago, Ill.—I am inclined to agree with Dr. Nelson that the fear motive is not by any means the only one, unless we stretch that idea too far.

It has seemed to me that the greatest factor in adult insufficient behavior is the carrying over into adulthood of the childhood pattern of reaction. Parents are responsible for that by not allowing children a proper amount of self-decision as to their actions and by not realizing that they are human souls who have a life to live and a reaction pattern to develop; or, if the parents do allow the child a certain amount of latitude, they immediately intervene when the results of those decisions are about to come upon the child, and therefore the child never learns what the natural results of his own decisions might be.

There is only one worth-while thing that parents could give their children, and that is the ability to stand alone; and there is only one time in which parents can give that thing to children, and that is at the earliest possible age. Many people would be surprised to learn how early the age is when the child should be allowed to make decisions for himself. When he has made his decision, unless the result would be utterly disastrous, the parent ought not to intervene in any way whatsoever to prevent the result of that decision from reacting on the child, because that is the only way that the child learns how to govern its own conduct.

Dr. David C. Wilson, University, Va.—I believe that Dr. Young has been misinterpreted to a certain extent. Three or four years ago in mental hygiene work the emphasis was laid almost entirely on the study of the abnormalities of the sexual instinct. Accordingly, so to speak, a sexual interpretation was put upon all behavior. During the last year or two a great deal more emphasis has been put on the child's effort to defend and develop its ego; there is really an ego-libido combination. It seems to me that is what Dr. Young is saying, that fundamentally the development of the ego has the first place. This attitude certainly makes a good many of our problems easier to interpret.

Dr. Ralph P. Truitt, Baltimore, Md.—The problems of children are frequently reflections of the parents' problems. To help these children one must often help the parents, and one cannot help the parents in these special situations by directly criticising them or by making intellectual appeals, but rather one must appeal to them at the emotional level where the problems are found which, when projected on their children, cause trouble. One must first learn about the parents' difficulties, and this is not always a conscious situation with them, and then it must be made possible for them to realize their own situation and behavior in relation to the behavior of their children. A large part of our work with troublesome children should be work with troubled parents.

When a child's behavior is quite disturbing to those concerned, the child's ego satisfaction is frequently great and he enjoys the power his behavior gives him. Children love to exert power. The more cute, spoiled or "bad" they are, the more "kick" they get out of demonstrating their power.

Dr. Young (closing).—One can understand these problems only on a phylogenetic basis. I am speaking of beginnings and not things subsequently evolved. It is undoubtedly true that other factors enter later in life. This discussion concerns more particularly the period from birth to adolescence. During adolescence problems more definitely related to sex enter.

I am in accord with the statements of Drs. Nelson and Lake. I think if the parent would only assist in making the subsequent individual essentially independent, they would not so frequently fail in their function. We speak of child guidance when in reality we deal with parent guidance.

THE TRACHOMA PROBLEM*

By PAUL D. MOSSMAN, M.D.,†
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Occasional cases of trachoma may be found in any part of the United States, but there are rather definite foci in a number of states where the disease is prevalent enough to constitute a real or threatened health problem. In Kentucky, Missouri, Tennessee, and Arkansas the disease is found in rather widespread areas, while in certain other states, such as Georgia, Illinois, Texas, Virginia, West Virginia, Oklahoma, and possibly a few other states, there are localities where trachoma cases occur in such numbers as to constitute a local health menace worthy of the attention of the health authorities.

A number of states have a considerable Indian population. As these people become more and more merged into the general population their health problems become increasingly the concern of state and local health authorities. The prev-

*Read in Section on Public Health, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

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alence of trachoma varies widely in different tribes. Some tribes are almost or entirely free from it; in others 20-25 per cent of the members are afflicted. The Indians are beginning to take their places alongside the whites in industry, public schools and other phases of everyday life. This movement away from reservation life and toward a mode of life similar to that of white people will undoubtedly continue. As they come into closer contact with the white population they will bring to the states concerned certain public health problems. Among these is trachoma. As these people become citizens their health problems will become the responsibility of the individual state. Not only that, but the danger of spread of their diseases to the white population must be realized and dealt with. The Indian Medical Service is doing more and better work than ever before in ridding the Indian of the burden of disease, but the job of persuading the Indian to accept treatment and to persist in treatment is a slow one, and it will doubtless be a good while before the prevalence of trachoma in some tribes is reduced to a level below that of a public health problem.

You are familiar with the work of Noguchi[1] in the isolation of *Bacterium granulosis* and with it the production in monkeys of a condition closely resembling trachoma. This was confirmed by Finnoff and Thygeson,[2] but other workers, including Morax[3] and McCartney, in Europe and Dr. Bengtson, of the Public Health Service, have been unable to recover this organism. Authorities are not all agreed, however, that the condition produced in monkeys by inoculation of *B. granulosis* is identical with trachoma. Lindner even went so far as to insist that it is folliculosis and that Noguchi has found the causative organism of folliculosis. The normal conjunctiva of the monkey differs considerably from that of the human eye. Also it is not easy to produce trachoma in the monkey by direct inoculation of material from the eyes of trachomatous persons. For these reasons it appears that we should seek a subject more susceptible to inoculation and more likely to present a typical picture if inoculation is successful.

In the light of our present knowledge, our hope of eradicating or preventing the spread of trachoma depends on two factors: education in personal hygiene, combined with early diagnosis and treatment. An additional factor over which health authorities have little or no control is improvement in economic conditions. With better food, less crowding, better means of securing cleanliness, trachoma has less opportunity to spread. The U. S. Public Health Service, in cooperation with state and local authorities, has been since 1913 conducting small trachoma hospitals, which serve as centers for treatment and a campaign of education along public health lines. A research laboratory associated with one of these hospitals has done notable work in studying the bacteriology of this disease. These hospitals have been neither large enough nor sufficient in number to do more than afford a demonstration in their respective areas of the efficacy of their method. Trachoma, as we find it in the south central states, is a rural disease, prevalent among a people not accustomed to travel even if they had the means. They do not have ready access to clinics or to specialists. Such treatment as they will get will have to be placed within their reach, both financially and geographically.

This fact was recognized by the Public Health Service and the plan has been tried and tested of holding weekly treatment clinics in a county where trachoma is prevalent. A field nurse spends her time instructing the people in their homes and persuading those who appear to need it to seek treatment. The efficacy of this mode of attack has been proven by experience of four years. Of course, once a week is not as often as trachoma should be treated, but by this means it was possible to reach a large number of early cases, especially in children, who otherwise would have had no treatment whatever. A goodly part of these cases, especially the early ones, were definitely arrested by one season's treatment, as evidenced by examining them the following spring, after a winter without treatment.

It has been our experience that patients who were treated early in the course of the disease are less likely to suffer from complications and sequelae, particularly damage to vision, than those who had no treatment until the disease was far advanced. This is true even if the early treatment was not what we would consider ideal or adequate.

In order to reach the affected areas effectively it would be necessary to multiply the treatment centers. I advocate a group of five or six treatment centers each in an area varying in size ac-

cording to population, prevalence of trachoma, and accessibility. A field nurse would be stationed in the area about each center to do instructional and follow-up work. A doctor would devote his time to treatment and supervision of the work of the nurses. He would spend one day per week in each of the centers. This system could be extended by having the local doctors instructed in the diagnosis and treatment of trachoma and paid for doing it. In this phase of the program also, the field nurse would play her role in instructing and advising the people and keeping them coming for treatment. I have believed for a good while that this mode of procedure is a justifiable state undertaking, but have not had the courage till now to proclaim it publicly. However, I have been heartened by the statement of Dr. Emile de Grosz, Professor of Ophthalmology at the Royal Hungarian University of Budapest, that the trachoma law passed in Hungary in 1886 provided not only for the hospitalization of trachoma cases, but empowered the Minister of the Interior "to arrange courses of instruction for which material will be distributed to the participating physicians and remuneration fixed for the communal and parish doctors." It was also provided that "the costs of all these measures will be defrayed by the State Treasury."

Surely if we are to eradicate trachoma in this country we shall have to adopt some such comprehensive mode of attack.

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DISCUSSION (*Abstract*)

Dr. Adolph O. Pfingst, Louisville, Ky.—When we deal with a disease the specific cause and pathology of which are in doubt, great difficulties in the diagnosis and treatment are always encountered.

Although the specific cause of trachoma has as yet not been determined, it has for years been the opinion of the medical profession that the disease is an infectious one in which the infectious element is conveyed from individual to individual by actual contact and transfer of the secretion or through the medium of towels, handkerchiefs, sponges, and so forth. The fact that the epidemics of the disease have occurred where people are segregated or crowded together, as in armies, schools or orphanages, seems conclusive evidence of the infectious nature of the disease. Notwithstanding, we find many careful observers, among them Stucky of Kentucky, who uphold the view expressed by Angelucci that the development of trachoma is based on some constitutional disturbance, probably of a tuberculous nature.

In 1907, it seemed that a new era was to be opened in the study of the etiology of trachoma when Prowazek and Halberstadter described in the conjunctival epithelial cells of individuals afflicted with trachoma finely granular masses around the nuclei which they called trachoma bodies. They were considered characteristic of trachoma and the specific cause of the disease. As these bodies have been found in other forms of conjunctival inflammation, as they do not occur in all cases of trachoma and as they have been experimentally produced by chemical agents, their pathogenic significance in trachoma is questioned.

No doubt you are all familiar with the latest research work in the cause of trachoma by Noguchi under the auspices of the Rockefeller Institute. (I am impelled to pay tribute to this hard working Japanese scientist who died a victim of the cause of humanity before he could satisfactorily complete his trachoma research.) He was able to isolate from trachomatous lids of the American Indian a Gram-negative motile bacillus which he called the *Bacillus granulosis*, with which he was able to induce in monkeys by direct inoculation a granular conjunctivitis identical with trachoma as seen in the human. At the last meeting of the American Medical Association in Detroit Dr. Finnoff, of Denver, reported his results of experimental study of trachoma in which he was able to corroborate the work of Noguchi. The only break in the link of the postulate of Koch was the failure to reproduce the disease in man after obtaining a pure culture from trachomatous lids, owing to inability to obtain human material for the experiment. Other workers, as Lindner, Graff, Morax and Bengtson, failed to recover the organism described by Noguchi from trachomatous cases.

Perhaps we are on the road, but more corroborative results will have to follow before the *Bacillus granulosis* can definitely be accepted as the specific cause of trachoma.

The treatment of trachoma should largely be of a prophylactic nature and I would heartily commend the educational measures in hygiene as outlined by the essayist. Inroads have already been made into the disease, especially in districts inhabited by ignorant and unclean people as they exist in our Kentucky mountains and elsewhere, by public health work, largely fostered by the Federal Government. The National Society for the Prevention of Blindness is to be commended for its work in this direction. I note the recent organization at Geneva, Switzerland, of an international body for the prevention of trachoma, at which Dr. Park Lewis, of Buffalo, represented this country. Their proposed activities are to cooperate with the International Congress of Hygiene and all other organizations interested in combating trachoma and to further the eradication and limitation of the disease by encouraging research in the study of the etiology, diagnosis and treatment of trachoma.

The establishment of more treatment centers in areas affected with trachoma as advocated by Dr. Mossman appeals to me. However, I hardly believe that his idea of having practitioners in the vicinity of the

hospitals instructed in the diagnosis and treatment of trachoma to assist the all-time public health man and do follow-up treatment is feasible. At least I have never been able to obtain satisfactory cooperation from this source.

Dr. Ralph Booth Tate, Akron, O.—I at one time had charge of the Bureau of Trachoma of the Ohio State Board of Health. Our plan was to make surveys where we had reports that there were cases of trachoma and find out definitely how many cases there were and then call on the United States Public Health Service to operate upon these cases. In our experience in making the operation of grattage, 95 per cent of the cases recovered.

Most practitioners, not only general practitioners, but specialists not familiar with early trachoma, recognize later cases, but not early cases. It is not the early cases that are benefited from the operation of grattage. The only way to get hold of these cases is to make surveys, because they are not reported. When Dr. Boudreau had charge of epidemiology a number of surveys were made. He had charge of that department before me and it was during his service that so many surveys were made.

Several years ago I went into a home in the city of Hillsboro and made a survey and found a number of cases in that institution, simply because a child had come there two or three years before with unrecognized trachoma. The condition was thought to be some kind of sore eyes, and the children were not using individual towels and basins.

Dr. Irl Brown Krause, Jefferson City, Mo.—In Missouri we are attempting to carry out the ideas which Dr. Mossman has been sponsoring for some three or four years. Weekly conferences and clinics are held in counties adjacent to our Trachoma Hospital at Rolla, Missouri. At these clinics the patients of clinic type are treated and the follow-up work and postoperative work is cared for.

We hope to extend the present program to embrace a greater number of communities in which trachoma is a major public health problem. It is our desire to place a public health nurse in each county in the trachoma area. The nurse can do much to locate the cases of trachoma and to institute the follow-up program after treatment and operation. To expand the program legislative interest is most important, as it is a costly service and funds must be had if the work is to be instituted on a logical basis. In the past the demonstrations made by the public health personnel in the eradication and treatment of trachoma have done much to stimulate a response on the part of the Legislature and have accounted for the increased appropriations received by the State Health Department. Many of our legislators are from the sections of Missouri most heavily infected with trachoma.

Dr. Elfie Graff, Hickman, Ky.—It would be helpful if there could be some practical suggestion made in the closing discussion by which we might be able to distinguish between bad cases of granular conjunctivitis and trachoma, as we are finding in the schools many cases that need differentiation.

Dr. Wm. N. Keith, Inez, Ky.—I wish to emphasize the necessity of frequent clinics. We have many children, especially in isolated rural sections, who are very much afraid of the treatment. We are able to have our clinics on a certain day each week. Following the regular school examinations a certain number will venture to our place for expression of the follicles, while a number of others will wait to see the result. This being favorable, others will come until we can finally eliminate the trachoma from these districts. We use school teachers to make additional contacts and so encourage the children to come.

There is no doubt about the extreme contagiousness of trachoma. We have seen families with trachoma come into a community where there was no trachoma before, the children rather frequently staying overnight in the homes of others whose acquaintance they had made. Severe cases of trachoma develop among these contacts within a period of four months.

Dr. Jos. W. Mountin, U.S.P.H.S., Washington, D. C.—In making surveys one frequently hears statements to the effect that trachoma has decreased both in prevalence and severity. If the incidence of past trachoma can be estimated by the number of persons showing destruction of the conjuntiva and the presence of scar tissue the statement may be true. Many of these persons have not undergone systematic treatment and little change has taken place in the community except some general improvement in the social and economic situation. This brings up the question as to whether the tendency in trachoma, as in many other diseases, may not be towards spontaneous recovery and whether it is only the exceptional case which tends to grow progressively worse. State and local health departments have been slow to incorporate trachoma control in their routine programs. Health departments should regard trachoma control as their function and further experience may demonstrate that the average case may be improved by treatment at the hands of the general practitioner. The treatment of the more complicated cases no doubt will require the skill of the specialist. The statement has been made that local physicians are not interested in the treatment of trachoma. We may find that local physicians can be interested in trachoma if given some encouragement and training. Such a plan is now being considered in Tennessee.

Dr. Mossman (closing).—One of the duties of our field nurses is to visit the patients and keep them in the habit of returning for treatment as long as necessary. I think it would be justifiable to stimulate the interest of the local physician by paying him for keeping these patients under treatment.

It is hazardous to say that any given case is "cured." Some of them that appear perfectly free from disease flare up and give trouble again.

Efforts should be made to diagnose the disease as early as possible, since early treatment is much more effective than in the later stages. If carefully looked for, pannus may often be found even early in the disease, thus clinching the diagnosis. Usually, pannus is a much earlier complication than is commonly believed.

PUBLIC HEALTH IN TRI-STATE AREA AND ITS HANDICAPS*

By F. P. HELM, M.D.,
Miami, Okla.

There are three great factors which handicap our district, even though externally we present a rich aspect:

(1) Sixty per cent of all land is owned by restricted Indians and is free from taxation.

(2) This land is handled by the Government for lease right only and no permanent buildings are built because of thirty day removal option.

(3) The general class of working people in our district is of the squatter type from three neighboring states.

Allow me to go to some extent into the history of:

THE ZINC REGION

The Tri-State Zinc District, lying in Northeastern Oklahoma and adjacent areas in Kansas and Missouri, is the greatest zinc producing region in the world. In recent years the field has yielded about 60 per cent of the United States zinc production and about 15 per cent of the world's output. The zinc producing district in Oklahoma is confined to Ottawa County, which now accounts for practically two-thirds of the output of the whole Tri-State District. Though zinc was mined in this section of Oklahoma as early as 1891, production did not approach its present proportions until 1915-18, the period in which began the development of the rich zinc fields that center about the present town of Picher. Between 1910 and 1920 only Tulsa County exceeded Ottawa County in rate of population growth, the population of the latter increasing from 15,713 to 41,108, or 161.1 per cent.

The land now included in Ottawa County was originally a part of the Cherokee Nation. Later, most of it was set aside for the remnants of several Indian tribes, including the Quapaws, Modocs, Peorias, Shawnees, Ottawas, Wyandottes and Senecas. A large part of the zinc is mined on lands owned by the Indians, chiefly the Quapaws. Many of these Indians are still wards of the Government, their business affairs being handled by the United States Department of the Interior. The leasing of land for zinc mining is on a royalty basis, and some of the Indian land owners have become immensely wealthy as a result of royalties paid by the mining companies.

Physiographically, the southeastern part of the County belongs to the Ozark region, while the remainder is a part of the Cherokee prairie. The topography of the prairie land is flat to gently undulating and its soils have been derived from the immediately underlying rocks, which consist chiefly of shales and sandstone, with shales predominating. Inadequate drainage and insufficient lime and organic matter limit the yields on some of the prairie soils. In favorable seasons when there is neither too much nor too little rainfall fair to good crop yields are obtained. Much of the Ozark portion has strongly rolling to hilly topography occupied by thin cherty soils. Though the zinc mines represent the main wealth producing and population supporting activity of Ottawa County, agriculture is not unimportant. General farming is the prevailing type, with corn, wheat and hay as the principal crops. Hay, which ranks second to corn in acreage, is mostly obtained by cutting the native grass which originally covered all the prairie lands. With generally favorable conditions and a good market, dairying has assumed considerable importance during recent years. About two-thirds of the land is in farms, and including the acreage from which native hay is cut, about 38 per cent of the land is in harvested crops. About one-half of the farms are operated by tenants and such farms ordinarily have poor improvements; few owner-operated farms are well equipped with buildings and fences. The 1925 census of agriculture gave the number of farms in the County as 1,511, as compared with 1,524 in 1920, and 1,600 in 1910. The farm population numbered 7,639 in 1925, or roughly, one-sixth of the estimated total population of the County.

Miami, the county seat of Ottawa County, is a thriving city of about 8,500 inhabitants. In addition to its importance as an agricultural trade center, a considerable part of the commercial and financial business of the Tri-State zinc industry is centered in Miami, the city ranking next to Joplin, Missouri, in this respect. Numerous zinc mining companies and

*Read in Section on Public Health, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

concerns engaged in supplying tools and machinery to the zinc industry have located their headquarters in Miami. Few zinc miners live in Miami, but it is the home of many of the superintendents and officers of the mining companies. Living conditions in Miami are excellent, and the city is well provided with churches, schools, and public buildings and improvements. Northeast Oklahoma Junior College, which is a state institution, is situated here. Miami is a substantial city and has good possibilities of future development.

Picher was only established in 1916, but in 1920 it had 9,678 inhabitants, which approximates its present day size. The adjoining town of Cardin (Tar River) has about 2,600 inhabitants, and the town of Commerce, three miles southwest of Cardin, has about the same population. These communities are mostly inhabited by zinc miners and their families and their appearance is similar to that of most hurriedly built mining towns. Peoria, the first center of mining activity in the County, is now a village of less than 200 people. Lincolnville probably had as many as 1,000 inhabitants at one time, but it is now an unincorporated place of about 150 people. Quapaw, the railroad point for the Lincolnville mining camp, has lost a large part of its population, due to the decline in mining activity in its territory. Quapaw's present population is probably around 500, as compared with 1,394 in 1920. It is unlikely that the zinc industry in this section of the State will demand more workers than at present; probably fewer will be employed. However, it is practically certain that a large zinc mining industry will be maintained in this region for many years.

In the fall of 1925 a survey and maps of the County were made. In this survey over 8,000 toilets were inspected by the inspector and me. It was seen at once that the chief need for the District was sanitation.

The survey revealed a sea of filth, garbage and night soil pouring from every out-building and no drainage. This area was a true example of a boom town with a floating population of the lower class. Let me bring this common example before you. Under one of the chief business houses on the corner of Main and Third at Picher we used a fire truck to pump this filth for over half a day. The odor from it could be smelled for blocks and it required seven hundred wagon loads of chat to fill beneath this building.

It is no wonder that we had a high infant death rate, or that over 75 per cent of the County sickness was in this district. It was our idea to bring sanitation to this area through education and not by force. Posters were obtained from all sources, newspaper publicity used and a general appeal made to the public. Ditch drainage was asked of the city, and various clean-up campaigns started. Buildings were raised, streets, alleys and roads were graded, and lot after lot was filled. Moves were made to install bucket and box toilets, sewer connections and to improve the general toilet situation in the camp. Ten thousand, nine hundred and eighty private inspections have been made and notices given. The following toilets have been installed: bucket and box, 1,077; concrete pits, 182; sewers, 214; septic tanks, 173; and, toilets remodeled, 385. The total number of inspections since the original survey in the county unit are: private, 11,156; public, 3,644; grand total, 14,800.

Our progress was slow and, as I have said before, the property was on only temporarily leased ground. Several times after our work was completed it was wiped out by an order to move in thirty days and chat from a mill soon covered the spot.

It was here in this sea of filth that 43 cases of typhoid occurred two years ago. An active immunization campaign was started at once. Here an appeal was made to the Tri-State Welfare Department and Bureau of Mines Clinic for aid and cooperative support. Through Mr. Jenkins, of the Welfare Department, a special nurse was given to aid and to give typhoid vaccine. Also a ruling was handed down by mine officials and compulsory vaccination of employees was enforced.

Newspapers were brought into play warning the people and advising immunization at once. Through these efforts and with the above cooperation 10,980 complete immunizations were given. Since that time about 2,000 more complete immunizations have been done, chiefly among school children. The education derived from this campaign helped us with the sanitation in the district and the owners of many homes where once was only bare chat now have flowers and grass in their yards and their

property shows marked improvements and some pride of possession.

In the beginning of the work of the unit the need for a free venereal disease clinic was seen. Through the cooperation of the Tri-State Zinc and Lead Ore Producers' Association, the Bureau of Mines Clinic and local physicians, our venereal work has progressed nicely. During the first two years, 1926-27, 1,385 curative treatments were given.

It was in 1928 that the Bureau of Mines Cooperative Clinic was enlarged. Though their chief aim was to examine men for tuberculosis and silocosis, a routine Wassermann was made part of the examination. The percentage of positive Wassermanns when the Bureau of Mines Laboratory was first opened shows that approximately 30 per cent of those passing through the Clinic had syphilis. It was during this year that our treatments increased to 2,196. All men examined by the Clinic and showing a positive Wassermann were compelled to take regular treatments weekly and return signed slips to their foremen. Owing to the great increase it was urged that a free venereal clinic be established in connection with the Bureau and all necessary medication be furnished by the State. This was done, which relieved the unit and allowed us to divide the County into two districts, those nearest Picher to go to the Bureau Clinic and those nearest Miami to return here. Even then our curative treatments for 1929 amounted to 1,032. During the year 1929 the Bureau showed a reduction in positive Wassermanns, the average for the period being 10.6 per cent. The majority of cases found are under treatment and are forced to take treatment until the blood is negative. They must then report after thirty days for a blood test and if it is negative they are given a work card for six months, to return for another blood check at the end of this time. This is very important, as many men do not realize that the blood may remain negative for some time after antiluetic treatment, only to become again positive. They should remain under the care of either the family physician, Bureau, or of the unit for two to three years, having the blood checked repeatedly.

According to Dr. Meriwether, the Surgeon in charge of the Bureau of Mines Cooperative Clinic, the best information that can be obtained indicates that the production rate of the disease is approximately 5 to 6 per cent of the total number of males in the field and that it is interesting to note that the percentage of cases in the mining field of the three states in which the work is carried on appears to be much higher in the state that has no venereal control.

We do not claim credit for the work done in tuberculosis control in the County except in a cooperative way. This credit all belongs to the Bureau of Mines Cooperative Clinic at Picher, Oklahoma, which has been in operation since June, 1927, and is maintained by three sources, namely: twenty-eight mining companies, the Metropolitan Life Insurance Company, and the United States Bureau of Mines.

Between June, 1927, and December 31, 1928, it had made 15,351 physical examinations of men and 400 examinations of women and children. The twenty-eight companies cooperating with the Clinic have had 11,000 men examined; a total of 4,751 examinations have been made for work or diagnosis. The examinations of the workmen, as well as those outside of the industry, have brought out a vast amount of information that is valuable to the general public as well as the medical profession. As was already generally known, the percentage of silicosis and tuberculosis in the mining field was high. This was recognized and it was mainly with the object of controlling and reducing the incidence of these diseases in the field that the Clinic was organized and put into operation. This year's work so far indicates that there has been a reduction in the number of silicotics of slightly more than 25 per cent. As is well known, the first degree cases of silicosis are not barred from the mines and no effort is made to control these cases other than the attempt to eliminate or control the dust underground by wetting and improved methods of mining, stop popping off borders and squibbing on shift. The reduction in first degree silicosis is small, but the tendency is toward a decrease. The marked reduction is in the second and third degree silicosis, and it is slightly in excess of 50 per cent. In the large number of miners having silicosis it would be natural to expect a considerable number to be complicated with tuberculosis. A survey this year of the examinations made to date shows a reduction in the number of cases of silicosis complicated with tuberculosis of approximately 40 per cent, and the number of tuberculosis un-

complicated with silicosis, 46.1 per cent. The figures so far compiled indicate that there is a reduction in silicosis (first, second and third degrees), tuberculosis, and tuberculosis complicated with silicosis of slightly more than 37 per cent. These figures take into consideration all the lung conditions that might be associated with dust.

In the calendar year ending December 31, 1929, 9,208 physical examinations were made. Of this number 4,940 were examinations of men that had not been previously examined, 3,972 were re-examinations of men who had been employed in the mines, and 296 were examinations of women and children.

The primary object of the Clinic is not to afford a diagnostic center for the general public, but to safeguard the health and welfare of the workmen and their families in this mining district.

The soundness of this decision has been revealed in this year's work. A tabulation of the figures shows that tuberculosis and silicosis have been reduced 77.4 per cent. However, this does not mean that the work of controlling these diseases is completed. The work so far accomplished is largely attributed to the effort of the operators and organizations interested in the general welfare of the people. The people themselves can be of material assistance not only by helping to reduce further the hazard of contracting such diseases, but by inducing and helping men so afflicted to find occupations that offer them a better chance for recovery.

The information gathered from a tabulation of the foregoing cases shows that the method now employed will ultimately control tuberculosis and silicosis in the district, and probably of greater importance, will ultimately return a large number of men who are now physically handicapped or incapacitated by these diseases to health and positions as useful citizens, who, if allowed to continue in the mines, would ultimately die of the disease.

Our part in this work, as said before, is simply cooperation and we have sent 250 men to state or other tuberculosis institutions.

In conclusion, I wish to repeat the reasons why health work is handicapped in the Tri-State area, especially in Ottawa County, and why our County can hardly raise funds for the Unit's support:

(1) Only one-sixth of the population is farmers and half of these are tenant farmers of the poorer class.

(2) Most of the land of the County is owned by restricted Indians and is tax-free.

(3) The Indian-owned land is handled by the Government with lease rights only and on it no permanent buildings or fixtures can be built because of the thirty day removal option.

(4) Even though at first glance it seems rich, the County is poor because of special legislation which turned taxes from mine production to school districts where ore is mined and to roads of the County.

(5) The general class of people working in the district is of the squatter type and it has mainly a floating population from the three neighboring states.

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DISCUSSION (*Abstract*)

Dr. D. T. Bowden, Oklahoma City, Okla.—When Dr. Helm reached Miami the mine operators had taken out an injunction against the pit type toilet, which made it necessary to install box and can type toilets.

Cardin, formerly a town of about 4,000 population, wanted to incorporate. After incorporation the Federal Government notified the citizens that half the town was on restricted land and would have to be removed from the corporation. At the time I went there the restricted district had been removed and the taxes were seventy-five dollars per hundred of valuation! Such incredible conditions could maintain only under the fantastic conditions found in the Tri-State mining area.

Dr. W. S. Leathers, Nashville, Tenn.—I was wondering as Dr. Helm read his paper whether there was any lead poisoning in the district.

This Section should have a paper on some phase of industrial medicine each year. This is an important phase of medical service, and I am very glad to see that it was kept in mind in the preparation of this program. The South is developing quite rapidly industrially and in from fifteen to twenty-five years it is probable that there will be many problems in industrial hygiene which do not now confront the state and local health services. There are perhaps conditions at present that need investigation as exemplified by the paper which has just been presented. It is important that we educate the public concerning the value of "Health in Industry" so that as the problems arise we shall be in the position to secure the necessary funds and the cooperation of industrial leaders in instituting measures in the protection of the health of those who are employed under varying conditions in the different industries.

Dr. Helm (closing).—I know of no lead poisoning in the district. The type of ore mined is galena (lead ore) which does not produce poisoning and is chiefly handled by mechanical means. We have a good deal of trouble with miners' feet due to a slightly acid water (dilute sulphuric acid) which causes a condition similar to gall.

LEVELS OF NURSING: THE PRACTICAL NURSE, THE TRAINED NURSE, THE SPECIALIZED NURSE, AND THEIR RELATIONS TO THE ECONOMICS OF ILLNESS*

By CHARLES T. STONE, M.D., F.A.C.P.,
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Inasmuch as both nursing and the practice of medicine have as their main purposes the cure of disease and the alleviation of suffering, that which concerns the one is of vital interest to the other. Also, since the training of students in nursing is to a considerable extent a responsibility of the medical profession, it would appear appropriate to discuss some phases of nursing education before this Section.

Medicine itself is an ancient calling dating back nominally to the time of Hippocrates, but actually it began much earlier. On the other hand, the profession of nursing is a comparatively modern development. Florence Nightingale furnished the initial stimulus that inaugurated the sequence of events leading up to the present day conception of nursing. It is a rather natural consequence that in matters of education the older of the two professions should have set the pace and should have advanced somewhat further, and that some of the problems in modern nursing from both the educational and practical point of view may find at least a partial solution in similar situations of the past or present in medicine. It is with this conception of the subject in mind that the statements herewith presented are made.

Nursing has to deal with three particular types of or levels in its members: the practical nurse, the trained nurse, and the specialized nurse; and in any discussion of the larger aspects of nursing this division must be borne in mind.

Up to the present time the practical nurse has not entered at all into consideration from the educational point of view. She is generally an individual, often a widow, who through force of harsh circumstances is confronted with the necessity of earning a livelihood. She, therefore, without further ceremony becomes "a practical nurse," and it should be said out of fairness to her, that some of her numbers, few though they may be, develop a high degree of competency in caring for the sick. How much better it would be for all concerned if such persons could, under the supervision of the training school for nurses of a first-class hospital, be given a course in the fundamentals of nursing, such a course to last for a few months to a year. During this time they could act as nurses' assistants in the wards of the hospital, and could be taught the principles and practice of asepsis and antisepsis, the proper methods of carrying out standard procedures in nursing, the care of the patient, hygiene of the sick room, and so forth. Then a certificate of "practical nurse" might be issued and even a system of state regulation applicable to nurses of that type might be devised. This is exactly what is being done in some European countries with regard to midwives. The medical profession both here and abroad has always opposed the midwife of the usual type for good and sufficient reasons, but since a certain percentage of persons insist on using the midwife the only proper course to pursue has been or should be adopted, namely: training the midwife in the basic principles of obstetrics in order that her practice may be sound and reasonably safe. The so-called practical nurse of today is in the same relative position as was the European midwife of yesterday. We possess the means of improving her status and increasing her efficiency if we but choose to do so.

The trained nurse, as we recognize her today, is a fairly well standardized product with her pre-training school requirements and the usual three-year course in the hospital. Thanks to the development of the modern training school for nurses operated in connection with the large general hospital, such nurses are, as a rule, well trained to care for the sick in a manner befitting their high calling. However, at present there are coming into the ranks of the trained nurse, graduates of inferior training schools often situated in small private or semi-private hospitals away from the medical centers. Some of these hospitals actually succeed in training their nurses well in spite of their

*Read in Section on Medical Education, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

great handicaps, and some of the graduates make good nurses, notwithstanding the poor type of training they have received. However, as a class, such graduates in nursing are on a parity with the graduates in medicine from the commercial medical schools of a few decades ago. This issue will not long be a factor in producing an inferior type of trained nurse, because just as the old proprietary medical school became an extinct species, so will the poorer grades of training schools for nursing pass out of the picture with increasingly rigid demands enforced upon them in the way of higher entrance requirements, better curricula, and more stringent state supervision and examination. The teaching done in the good training schools of today is of a high order, though necessarily not entirely free from minor defects. It sometimes appears that in their efforts to teach well, the matter is a trifle overdone. We have witnessed in the last ten years a sharp increase in the purely didactic teaching done in training schools with a consequent reduction in the amount of bedside instruction, which was one of the great faults in most of the older medical schools. The course of teaching in the training school like that in the medical school should not aim to be all-inclusive, but should strive to equip the student with a sound scientific foundation, and to inculcate in him or her the constant desire for self-training after graduation. After all, however, the institution is judged by its product, and since the present day trained nurse measures up well to her standards, we may not be uneasy that minor pedagogical defects will constitute more than a passing phase in nursing education.

The lure of specialization in nursing is hardly less powerful than in medicine itself, and year by year we see larger numbers of graduates of training schools preparing themselves for a higher type of nursing service. It is necessary in projecting our educational scheme into the future to give careful consideration to the question of providing adequate facilities for post-graduate training in the nursing specialties, for example, in nursing education, social service, public health nursing, the higher types of administrative nursing positions in the various medical and surgical specialties, and others either now in use or which time and necessity will develop. At present specialized nursing is only beginning to come into its own, but its future possibilities are enormous. From the practical standpoint only a few patients require the services of a nurse specially trained in the care of certain classes of disease. The mental and nervous disease nurse, the nurse trained in metabolic diseases, and the surgical nurse constitute the already well developed types in the nursing specialties of today.

NURSES AND THE COST OF MEDICAL CARE

In the progress of medicine to its present state of achievement, the nursing profession has contributed a great deal; just how much cannot definitely be stated, but that it has been an important factor cannot be questioned. This is true not only in curative medicine, but in preventive medicine as well, where the nurse is even fulfilling a larger and more useful role. Naturally, therefore, with her increasing activities the nurse has become of some importance in the general question of the cost of medical care. According to a recent estimate, the average annual cost of nursing per family in the United States is eight dollars.* This appears to be a ridiculously low price to pay for so valuable a service, and yet it must be remembered that this figure is applicable to a unit of population and not to an individual family. Furthermore, nursing costs, like all those involved in the total cost of medical care, are unevenly distributed, and frequently come at a time when earnings are either temporarily or permanently suspended. Therefore, to a family of moderate means the cost of nursing may be, at times, a luxury that can hardly be afforded.

The question of the cost of nursing, like other expenses of illness, falls with greater hardship upon the low-salaried and wage-earning classes. The wealthy can afford any type of nursing service desired and in unlimited amounts, and the poor receive adequate care in the hospital wards or even through the agency of visiting nursing organizations in their homes. Only the so-called great middle class bears the burden heavily.

It is probably true of nursing service, just as it is of the demand for hospital facilities, that people in times of stress and emotion insist upon having more than they actually need for proper care, and certainly more than their pocket books can readily provide for. Under such circumstances it is well within the bounds of duty for the physician to indicate where and

*Rappleye, W. C.: Ohio State Med. Jour., Sept., 1930.

when such unnecessary expenditures are taking place, and he should, if necessary, order their curtailment.

Lest my remarks may be misunderstood, let me hasten to say that I do not believe nurses as a class are overpaid, and certainly then it is not in order to hint at a reduction in their scale of wages. With the possible exception of school teachers, nurses put more into learning a profession, with less hope of a substantial financial reward, than almost any other group of professional workers. Nevertheless, the problem which confronts us is in seeing that an adequate nursing service is provided for all who may require it at a price within their means. Several methods of approach to a solution of the difficulty suggest themselves.

In the first place, if practical nurses could be developed into a more capable class by some means such as that suggested above, there could be provided a much more satisfactory type of nursing for those who employ them. Manifestly the only valid reason for any one's deciding to engage a practical nurse is financial; but if we are going to insist upon adequate nursing for our patients, then we will of necessity be required to demand more from the practical nurse than she is able to give with her present lack of educational background. The laity cannot be expected to make wise selections in its choice of nurses, practical or otherwise. The term nurse implies one who is especially trained to care for the sick, and to those not more than casually familiar with the profession of nursing the designation is all-inclusive. Here again the physician should reserve the right to employ or discharge nurses as the need may arise. But if simply discharging a practical nurse because she is inefficient amounts to the substitution of a trained nurse who is more expensive, a great hardship may be imposed upon the affected individual. It might even be more satisfactory and more economical in some instances to do away with the private nurse altogether and move the patient to a hospital where the floor nursing would be sufficient. This, however, does not solve the question of providing an efficient home nursing service for those of moderate means, and until an improvement in the practical nurse situation can be evolved there seems to be scant hope for those who can ill afford expensive medical costs in securing a full-time domiciliary nursing. Personally, I believe the practical nurse is capable of being developed into a most useful member of the nursing profession if she but cares to put forth the extra effort involved, and if we can or will supply the training necessary.

On the other hand, we have at present the possibility of devising a good part-time nursing service with the personnel already trained or in process of training. A great many patients who are now employing trained nurses on a full-time basis simply because there is nothing else to do, could receive all they need in the way of a complete nursing service by employing their nurses for from two to six hours per day. It is a universal practice for nurses in hospital wards to care for several patients satisfactorily. Why cannot the same principle be made to apply to pay patients in the private rooms of the hospital or in the homes of the patients? Many patients no more actually need the services of a full-time nurse than they need a full-time physician. It seems to me that hospitals could provide part-time nursing schedules for their less affluent patients on a per hour basis rather than by the present method of supplying the nurse for a full day or not at all. It would appear reasonable for a nurse who simultaneously cares for two, three, or more patients to receive a larger combined fee from the total number cared for than the customary per day charge per single patient, provided she does a full day's work. If her hours on duty were less than a full day the fee naturally would be only for the time during which she was actually employed. Such a system of remuneration is a basic one in industry, the trades, and other professions, and there is no reason why a similar scheme could not be worked out for nursing. The plan would enable those of limited means more easily to finance their illnesses.

The same principle of part-time nursing could be employed for service rendered in the patient's home. The Red Cross visiting nurses do this type of work among the poor with striking success, and it would immeasurably increase the use of trained nurses in the homes of the wage-earning and low-salaried classes if they could receive and pay for only as much nursing as they actually require without hav-

ing to pay for a full day's service some of which they could reasonably well do without. In fact, such a plan is already in existence in an experimental way in New York City, and the progress of the experiment has been encouraging. From this particular nursing service one may employ nurses by the hour or for any portion of the day desired. Of course, to those of ample means the question of employing part-time nurses should not arise, and, too, there will be cases among the less well-to-do where part-time service will be inadequate, but in a considerable percentage of instances it can be advantageously utilized.

The problem of the specialized nurse in relation to the economics of illness is not a very large one, but the principles already suggested may also be made to apply to this class of nursing. The writer has, for example, for several years employed a nurse specially trained in the care of diabetes to look after two or more patients at a time. This has been found to be particularly useful when the patient is returning to the home after a stay in the hospital, and when the adjustment to the new diet, and perhaps to insulin, is being made with reference to his or her daily life. It is in fact probably an easier matter to use the specialized nurse on a part-time basis than either of the other types. Regardless of the kind of nurse employed, in the case of acute illness or an emergency there could be a full-time service until the acute phase or the emergency had passed, and then a part-time basis could be arranged so long as a nurse is required.

CONCLUSION

It appears, therefore, that two important problems which confront the nursing profession are: first, the offering of a suitable basic training for those who intend to become practical nurses; and second, the widespread development of a well organized part-time nursing service, especially for those of modest financial ability. That these two ideas are of considerable practical usefulness cannot be doubted; that they are somewhat revolutionary will not be denied, but in them we approach an answer to the problem of obtaining a satisfactory and adequate nursing service for the sick of all classes at a figure within their ability to pay. Finally, the suggestions are of a constructive nature, and as such merit a thoughtful consideration.

DISCUSSION (*Abstract*)

Dr. L. J. Moorman, Oklahoma City, Okla.—As time goes on the business and professional phase of nursing is more evident, with a dwindling human interest or sympathy element in nursing. The economic problem is for many people a very serious one, including many physicians' families. I hardly know what to say with reference to the remedy for this situation. I believe that 80 per cent of the sick might be as well cared for as they are today with nurses having perhaps one year's training instead of three in the care of the sick. I might say in this connection that the most impractical thing that I know of is the application of the term "practical nurse" to the practical nurse as we see her today. As Dr. Stone has suggested in his paper, the practical nurse is usually somebody who has had hard luck in life and seeks to make good and perhaps serve her community by taking up nursing. Such a one might afford to have one year's training in nursing. I am for the graduate nurse, but in perhaps 80 to 90 per cent of the cases the nurse with one year's training in the care of the sick would help materially to solve the problem which we face.

Training schools should have equipment and facilities for giving training to nurses who are going into special work. One of my friends told me yesterday that he had written a book on nursing in his specialty, and I think his object is to have this book adopted in the training schools. I asked him how large the book is and he said about 250 pages. Now, think of keeping a nurse, whose object is to go out and take care of the sick, in three years to pore over a book of 250 pages on a special subject! They need not know so much about anatomy as the doctor does, because they are not going to be called upon to perform operations; they do not need so much pharmacology, because they are not going to prescribe for the patient. I do not see a great need for the three years in the training school, but I do see the great need of raising the qualifications for the service which the nurse is going to render, aside from the mere school or educational qualifications.

There are many people who cannot afford a nurse when they need her. The practical nurse does not fill the need, because the practical nurse as a rule has no training. She does not know how to take care of the sick, except through the natural tact and inclination which the nurse should have. Some of the practical nurses make splendid nurses, because they do meet the patient's pscychology and learn how to take care of the patient. Some of them make splendid nurses after they have had sufficient experience to know what to do for the sick. I have a small institution, and I have been able to employ both graduate nurses and undergraduate nurses. We have girls who come into the institution sometimes as patients who stay to do nursing. These girls, with six months' training under my superintendence and experience, more nearly meet our needs than the graduate nurse who is called in.

My institution is for the treatment of pulmonary diseases. I am sorry to say it, but I find that the average graduate nurse is afraid to nurse a case of pulmonary tuberculosis. Until recently they considered the disease as one of the infectious diseases and charged $8.00 a day instead of $7.00. They are not well versed in the management of tuberculosis, be-

cause in the average nurses' training school they do not see the treatment of tuberculosis. The graduate nurse is not so good for this type of case as the undergraduate nurse after she has had perhaps six months' experience. It is the experience of the patients in my institution that they would rather have the nurse who is fairly well trained to do this particular type of nursing.

I am very much impressed with the fact that the human sympathy element is dwindling in our contacts, as it is in many other ways, even in the medical profession, perhaps. I feel that something should be done to remedy this. Appraisal of the applicant's personality would probably help to remedy it. Florence Nightingale was not a trained nurse, but she did render great service. We cannot ignore the patient's mental attitude.

We must try to solve the economic phase of nursing through probably a shorter course of training, with facilities for giving specialized nursing to take care of our needs in that particular field; and I think we should try, in training schools for nurses, to see that the nurses remember that "The quality of mercy is not strained" and that they have the glorious privilege of practising what Portia preached.

Dr. Isidore Cohn, New Orleans, La.—I am thinking of the nurse from the surgical standpoint, particularly, and I cannot agree with Dr. Moorman that the nurse with six months' training, the so-called "practical nurse," could help us in our hospital, because we need intelligent cooperation. The nurse is essentially our right-hand person, and in order intelligently to cooperate with us she must appreciate needs as they arise. In order to appreciate symptoms and to evaluate them properly she must have had sufficient training both from the standpoint of experience and from the standpoint of symptomatology to enable her to meet these needs. I am in favor of the education of the nurse, because I believe we should attract to the nursing profession the higher type of womanhood, the woman who is going to be filled with human sympathy and kindness, and that woman is the woman of culture and education and refinement. We want her in medicine, and we need her. I think we need more education for the nurse every day.

Dr. Allen H. Bunce, Atlanta, Ga.—We have in Georgia too many schools of nursing, too many poor schools of nursing, too many schools taking almost anyone into them. Therefore we have too many nurses. A law passed about three years ago created a state board of examiners in nursing education and gave them much more power than before. We have been very fortunate in securing Miss Van De Vrede as secretary of this board, and she has been very tactful in talking to physicians in small towns, with small hospitals, and getting them to give up their training schools, and in going into the hospitals and analyzing the cost of the training schools, showing the boards of trustees, in some instances, that it would be much more economical for them to employ graduate nurses and to give up the training school than to train nurses improperly. Very little has been done to determine the cost of training the nurse, the comparative cost of running a hospital with graduate nurses and running it with a training school. Some of our small hospitals are doing high-class work and giving the patient a cheaper rate than do those hospitals with training schools. These hospitals will absorb a large percentage of the oversupply of nurses. This state board has been very reluctant to authorize new schools, and I believe no new school should be authorized in any state until it is shown that it will conduct a proper school of nursing. The best thing I have heard recently at all in reference to this subject is the paper given by Dr. Leathers this afternoon. In all other types of vocational education we give the scholar about one hour of didactic or classroom work to about four hours of practical work, but we are requiring our nurses to do ten hours of practical work to one one hour of classroom work. It is unfair to the nurse for a school to take in an unqualified person, and it is unfair to the qualified person to take in that person and not give her proper training. I believe the solution is to cut down the number of schools, improve the schools we have, train the nurses better than we are now training them, run the small hospitals with graduate nurses, have group nursing in the hospitals, perhaps have group nursing also in the homes, but not use the nurse who has six months or one year of training.

Dr. Stone (closing).—I do not want to create the impression that I am urging lower standards of training for nursing. However, since we have a class of individuals practising nursing who have chosen to designate themselves as "practical nurses," I think it would be a great deal better to improve the quality of service which that class is able to render. Personally, if I were sick and could afford the expense, I would secure a trained nurse. But there are many people who are going to have practical nurses and should we not do something to make these nurses more useful?

The question about didactic teaching in the training of nurses has been a rather sore spot with me for some time. I have discussed it with our own training school people, because in recent years they have rather adopted the criteria laid down by the New York State Board of Nurses' Examiners. They say that some of our nurses want to go to New York to practise nursing. As a result during the last few years our nurses have been spending less and less time in contact with sick people and more and more time in the classroom listening to some one talk about a subject in which he is interested. I think the way to learn nursing, as I think the way to learn medicine, is to study the sick person. The way to learn, whether it conflicts with the New York State Board's requirements or not, is at the bedside.

We are not utilizing as we should the principle of part-time nursing. Dr. Cohn spoke very ably in defense of his position of having a thoroughly trained person for his surgical patients, but what is the use of having a seven dollar a day nurse for a simple appendectomy? Why should not that same nurse care for three simple appendectomies? I say these things not in any unfriendly spirit, but simply with the idea of making adequate nursing a thing that can be enjoyed by more people in moderate circumstances.

THE PREPARATORY AND TECHNICAL EDUCATION OF THE NURSE*

By JANE VAN DE VREDE, R.N.,
Atlanta, Ga.

The subject you have assigned me is so inclusive and so varied in conception that it is difficult to include all one would like to say. I feel keenly my limitations in trying to present it. There are many who would urge I am not qualified to do so. But from an experience of fifteen years as a member of a board of examiners of nurses; of study of text book information to students; of listening to lectures by physicians; classroom instruction of instructors; observation of ward practice and private duty in homes; from having employed nurses in my own home and being a patient in home and hospital with the nurse's as well as the patient's point of view; having listened at the feet of leaders among physicians and nurses, individually and in group meetings, and to the tales of disappointment of thousands of nurses, I have learned, I believe, something about the aims, the development, the status and the trends of nursing education.

Much has been written and more said about the education of the nurse and the training of the nurse. Many are still thinking only in apprenticeship terms of her preparation. To many, as regards nurses especially, the terms are synonymous. Many of the older professions, notably medicine and law, have evolved from the apprenticeship basis, but because they were professions they required a more liberal education than could be acquired by that method; though as late as 1912 Dean Kirchway, of the law school of Columbia, made this statement:

"It is safe to say that even today not less than two-thirds of those who apply for admission to the bar have gained their professional training wholly or mainly in law offices."

It is then natural that the preparation and education of the nurse follow the trends of all other types of professional servants of the public.

Perhaps it may be well to review briefly a few definitions.

Professor Bonsor looks upon education as the widening of experience, that the individual may lead an increasingly rich and useful life. Education is defined as a capacity for growth.

The Carnegie Foundation for teachers offers us: a liberal education in the sense of training the powers of the mind, and a technical training for skill in the arts and crafts. These are the two great sources of human usefulness and happiness that organized education aims to open up to every member of the body politic: the ability to think clearly and the ability to do some useful service with skill and precision.

I shall quote Dr. Charles D. Lockwood, of California, a great member of your great profession. In an address to the nurses of that state he said the objectives in nursing education are: (1) to produce a well rounded woman who not only has mastered the art of nursing, but who also possesses sufficient culture to give her a broad outlook on life and render her a useful citizen; (2) to provide a trained personnel, qualified to meet every demand of both a private or a public nature in the field of nursing; (3) to organize and administer efficiently all of the agencies that have to do with nursing.

And perhaps it is not out of place to quote what the founder of modern nursing, Florence Nightingale, herself had to say about the interpretation of and preparation for nursing: "Nursing is an art; indeed it is one of the fine arts; and if it is to be made an art, demands as hard a preparation as any sculptor's or painter's. For what is having to do with cold marble or canvas to having to do with the living body—the temple of God's spirit?" (At that time medicine had not attained its present professional recognition.)

Shall we grant, then, that nursing is one of the fine arts and demands on the part of its followers a capacity to think and skill to serve?

The problem is, then, what preparation, both academic and technical, is needed to vouchsafe this not to the few of unusual capacity, but to everyone who professes the art. In organized and standardized instruction, nursing as a fine art is far behind those usually named as fine arts, which Dr. Winslow of Yale attributes to its involvement in the apprentice relation to the hospital.

Perhaps this is not the time when we should attempt to make pronouncements about nursing education. We have not completed the five-year study of nursing under the National Committee on the Grading of Nursing Schools, composed of physicians, nurses, hospital executives, experts in the general educational field, and laymen. We do not know where we are, but we hope we know the direction in which we are going, and that is the important thing. Just now we are like the little girl who, with her mother, was taking an automobile trip.

*Read in Section on Medical Education, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

After riding some hours she fell asleep. Awakening suddenly and looking around, she said: "Oh, mother, how soon we got here!" The mother replied: "Yes, Mary; but where are we?" "Oh, I don't know," said Mary.

Those of us who are concerned with nursing are aware that we have come fast and far in recent years and are now trying to determine where we are and how to go forward from here. This study, under the able direction of May Ayres Burgess, Ph.D., has given us much information. It was difficult to make comparisons regarding the education of the nurse of yesterday and today, but it was found that there is an impression or feeling on the part of many physicians, and some laymen, that the average nurse of today is not so intelligent as her predecessor. The Committee tried to find out the validity of this impression. I quote from a summary published by the Committee in May, 1930:

"Most people would probably agree that every intelligent person wants an education and gets as much of an education as is reasonably within his reach. Industry today is insisting that the young men who come into its offices shall be college graduates; but that does not mean that a college education is in itself a particularly good preparation for business. What industry wants is apparently not so much specific information secured in courses as it is intelligence and ambition; and since intelligent, ambitious young men are in increasing numbers going to college, industry goes to college after them.

"We can say, then, that intelligence may be indirectly measured by the amount of schooling people manage to secure, compared with what other people around them are securing. In 1890, 32 per cent of the nurses coming into the profession that year were high school graduates, but among all the eighteen-year-old girls in the United States at that time only 2 per cent were high school graduates. The educational standards of the nursing profession were as high above those of the general female population as 32 per cent is above 2 per cent."

In the 40 intervening years these percentages have approximated each other. In 1929, 60-70 per cent of student nurses were high school graduates and between 30 and 40 per cent of all girls of the same age were high school graduates.

The report further states:

"There still exist schools in which the requirements for entering the nursing profession are not so high as those for entering the commercial or business world. In such schools nurses are being placed at about the same level as factory workers." And one of its conclusions is: "Educational standards in nursing are rising, but educational standards in the community are rising much more rapidly. If nursing is to attract women of the so-called professional type, it must set its educational standards high enough so that it can compete for students with the other professions now open to women."

The Rockefeller report of an earlier study of nursing and nursing conditions in the United States also emphasizes this fact.

It is natural, then, that whenever nurses or physicians associated with their preparation come together, we find them inquiring into the fundamental phases of this question of the preparation of the nurse or the still more fundamental one, the character and innate qualities the student brings to her entrance into the school of nursing. The impossible is too often expected of the school of nursing. There is no alchemy by which she can attain in a short course of ethics those characteristic virtues which parents have failed to develop through her childhood and adolescent years. Discipline in the school of nursing may protect the situation while she is under close supervision, but cannot atone for the lack of the parental authority of 18 years. The adventure and charm of youth bring hope and cheer and courage to broken bodies, but the seasoned judgment, patience, understanding and sympathy born of experience in life are also necessary.

Miss Annie W. Goodrich, Dean of the Yale University School of Nursing, believes that the best results in nursing education will not be obtained until there is a corps of graduate nurses for the bedside care of the sick in addition to head nurses under whom students can be placed, and that such nurses should be as soundly prepared as any group in the school.

Perhaps a beginning in the right direction could be made by a program of education for the graduate in well planned post-graduate courses for those already in the field. Physicians regularly repair to the Mayo Clinic and other great medical centers, and to their own near-by annual state clinics, for stimulation and instruction. Nurses have not done this and therein, I believe, lies much of the dissatisfaction and explanation of the failure of private nurses to progress. Hospitals conducting schools of nursing could make no greater advance for the whole question of nursing education and better care of the sick than to provide a plan for the regular return of their graduates in a continuing educational program. Post-graduate schools should be organized and increased, and undergraduate schools should be reduced in numbers and in number of students.

Tribute should be paid to the very great contribution that has been made by physicians to the education of the nurse. As an individual, the physician has made personal sacrifices of time and money to assist in her preparation. This has been of advantage and disadvantage, both to himself and to her. She has increased his professional opportunity and narrowed her own in the process. He has made a place for her as his colleague and given her a conception of devotion to duty and zeal in its performance which has been woven into her very being. But as Miss Nutting stated,

"The nurse should not be prepared to serve a single person or a single purpose; she should be trained to meet the need of the entire community."

This conception has not been accepted by the physician who conducts a private hospital with a school of nursing, or contributes to her education in a public one; and it is this conception that must be accepted if nursing schools are to meet their responsibilities to the public and to the nurse. The nurse must be prepared not only to meet community needs in sickness, but community needs of health or sickness prevention.

All would grant that in order to meet all these needs, the nurse requires a fundamental or elementary knowledge of the sciences underlying nursing. She needs to know how such knowledge may be applied. Therefore, she needs to know teaching methods and elementary psychology, and she must be so skillful in her art that the relation of its practice to results can be seen by those whom she would teach.

The nurse who comes into the disheveled home because of the illness of the infant, slowly starving from lack of nutrition, enlists the cooperation of the tired and worn mother, because by her skill in comfort care, or the preparation of food, she ministers to the immediate need of the infant who, satisfied and comfortable, ceases crying and falls into a sleep. Relief and peace of mind put the mother in a receptive frame of mind, and she strives to follow the nurse's directions. The nurse's technic and skill give her an "open sesame" to service, but they are made effective by the social sciences underlying their administration. We cannot go into detail of curricula in this paper. Suffice it to say that outlines and guides are available. A suggested curriculum has been presented, involving the modest requirement of one hour of theory to eleven hours of practical work, arranged so as to fit into the credit evaluations of general education.

The curriculum is planned with the needs of the individual patient as a whole as well as those of his particular condition. Changing and increasing facilities of diagnosis and treatment bring changes in methods of preparation. The physician's time at the bedside is shortened, his time at his desk "weighing the evidence" lengthened; in the latter, the student does not share. So we are building up the case study method as applied to nursing to take advantage of this knowledge in the preparation of the nurse. Unless he is involved in the economics of the situation, or on the faculty of a school of nursing, the physician need not be concerned perhaps by what method the nurse receives her instruction, nor how much knowledge she receives, nor how long it takes to acquire the art of nursing; but he is vitally interested in what type woman serves his patients and what her preparation guarantees to him of knowledge, skill and culture.

Every physician wants nurses who care for his patients to be of fine character and attractive personality; women of integrity, of good judgment, of devotion to detail; of intelligence and keen perception, who call him at once when necessary; who are able to manage the patient and family and not worry him when not necessary. He wants nurses who know how to make patients comfortable and keep them contented, and thus assist in hastening the recovery of his patients.

All this implies more than he realizes.

Standards of preparation predicate standards of performance; and conversely, standards of performance reflect preparation. The efforts of nurses to establish excellence in performance and protect the public in its selection of nurses, by securing minimum standards of practice provided by legal enactment, has been a long and discouraging struggle.

The public seems to take the preparation of the nurse for granted, because she is vouched for by the physician. It rests back in the safe assurance that its nursing is safeguarded by law as carefully as it knows its medical practice to be. Any attempt to change conditions is looked upon with suspicion, as designed in favor of group interests contrary to the public good. Is this proprietary attitude on the part of physicians responsible for their seemingly

antagonistic attitude, at times, and in certain states, toward the passage of better nursing laws and better preparation for nurses? How can we explain the recent experience of the nurses of one of our great states in their struggle for a full high school requirement for entrance to schools of nursing, which resulted in securing only one year of high school as a minimum requirement; while a four years' high school education, on a sliding scale, was readily granted to other professions asking for it, including that of undertakers! What reasoning lies behind the willingness to grant a better preparation to those who deal with dead bodies than for those who deal with the living body, "the temple of God's spirit?"

And in one of our Southern states, where repeatedly the nurses have attempted to change their nursing laws, the organized medical profession has gone to the Legislature and successfully lobbied against the passage of the bill! Let us hope that a better understanding is dawning, and that at the coming sessions of the Legislature, when another attempt is to be made, the physicians of the State will help to secure a good law governing nursing, and a dignified method of its enforcement.

And what can be said of the states in which nursing education has put its feet upon the sound path of university preparation for those who desire it, and where the local resources have been supplemented by endowments, and where nurses upon completion of their courses are required to conform to standards so low or undignified that they immediately attempt to secure registration in another state also, which permits them at least to retain their professional self-respect.

The problem of nursing education has been so bound up in its relation to nursing and general service in the hospitals that it has been attacked with temerity even by nurses for fear of its effects on the nursing service of the hospitals.

In a number of European countries graduate nursing service is supplemented by the student service which is incidental to the education or training of a nurse and does not control it. In this country, most hospitals that conduct schools of nursing expect student nurses to carry the entire nursing of the patients who do not provide outside special nurses at their own expense.

Hospitals and physicians are well aware that the student nurse is a source of income. In nursing we have exemplified the educational maxim of learning by doing to an extent that has not been done in the preparation of any other professional worker. We have increased our schools of nursing whenever we have increased the available beds of hospitals for the sick, not to prepare more nurses for graduate service, but to provide more student service in the hospital because we believed it the cheapest method of providing nursing care for the sick. This is not a worthy nor wise aim of education, and the results of the fallacy are attested in the thousands of nurses who, after having completed their three years of training, find themselves unemployed for one-third to one-half of their time.

This whole question of economics bears a definite relation to high standards of performance and preparation. The whole educational outlook of nursing needs to be radically changed.

The universal acceptance of the two principles announced by the Grading Committee would change the whole situation for the better. They are: (1) No hospital should be expected to bear the cost of nursing education out of funds collected for the care of the sick. The education of the nurse is as much a public responsibility as is the education of physicians, public school teachers, librarians, ministers, lawyers and other students planning to engage in professional public service; and the cost of such education should come not out of the hospital budget, but from private or public funds. (2) The fact that a hospital is faced with serious financial difficulties should have no bearing upon whether or not it will conduct a school of nursing. The need of a hospital for cheap labor should not be considered a legitimate argument for maintaining such a school. The decision as to whether or not a school of nursing should be conducted in cooperation with a given hospital should be based solely upon the kinds and amounts of educational experience which that hospital is prepared to offer. This economic relation of the nurse to the hospital is responsible for the production of more nurses than can be used.

It is clearly evident that in our cities there are too many nurses. In Battle Creek, Michigan, there is one registered nurse to every 119 persons; in New York, one registered nurse to

every 234 persons; in St. Louis, one registered nurse to every 400 persons; in Atlanta, one registered nurse to every 355 persons of the population. On the other hand, specialists in medicine cannot find adequately trained nurses to meet the needs of psychiatry, pediatrics, internal medicine or even obstetrics. Why? Because nurses are not adequately prepared during their training for the care of these cases. The needs of the sick in the hospitals necessarily cannot be considered on the basis of the needs of the student nurse for her preparation, but neither should her education be neglected because the hospital provides experience in only some of the major branches of nursing care.

Because of ignorance of the patient, or economic stress or failure to recognize the need by the physician, or what not, the medical patient does not come to hospital treatment as regularly as does the surgical patient. In this the physicians can assist most, for they see the patients. Their judgment sends them to the hospital and determines the use of the nurse after she has been educated.

The very valuable experience the nurse gains at the bedside is at present too fluctuating. Stable assignments in all the major services are required. Hospitals that conduct schools of nursing should provide such assignments by an interchange of students and a pooling of community resources on the basis of the educational needs of students, and not on the basis of what can be provided in keeping with the limited clinical facilities and time at the command of the staff. Very often valuable case studies for nurses could be developed if supervisors had the time to devote to the preparation of outlines and the guidance of the student.

Too often, also, the supervisors are chosen from the ranks of the young graduates, without special preparation for the positions involved or teaching functions; or they are selected from successful graduates, weary with the long hours and irregular life of private nursing, who "deserve" these positions.

The nursing school has found it difficult to secure a place among higher institutions of learning. Though universities and medical schools have maintained their own hospitals, they are slow to incorporate a school of nursing into their educational facilities; and it is strange to realize that among the many less vitally important phases of education that have received large endowments, until very recently no nursing school had been so endowed. Now, however, there are several endowed independent schools of nursing. Some thirty universities at least are contributing to nursing education, and notably three of these are in the South. Each state should have at least one such school; while community resources and instruction should be centralized for other hospital schools. Recognized uniform entrance requirements should be established, courses outlined by a central committee or council, and services exchanged to meet present needs.

Might we not have group meetings or institutes where physicians and nurses could come together for mutually helpful discussions of conditions to which both contribute in special ways? We are doing it in our Section meetings of the Hospital Association, of the Hospital Conferences of the College of Surgeons. We as yet do not do it generally in our local fields, where it is most needed.

The whole question is summed up in the words of Dr. Richard Olding Beard, of the University of Minnesota, whose belief in higher standards of performance and preparation of the nurse led to the establishment of the first university school of nursing, nearly twenty years ago.

"No aspirant for nursing can be too educated, too wise or too good."

DISCUSSION (*Abstract*)

Dr. Russell H. Oppenheimer, Emory University, Ga. Nursing education is now where medical education was a few years ago, and I think the medical profession would be selfish indeed if it did not lend to the nursing profession the benefits of the experiences it has had.

I should like to formulate a kind of definition of nursing education. I gathered this from reading Miss Van De Vrede's paper. Nursing education is the development of the capacity of administering to the comfort and welfare of the patient, sympathetically, understandingly, and thoughtfully. I have not said a word about science in this definition; but I do not feel that it is necessary, for it would not be possible for a nurse to minister understandingly or thoughtfully without a thorough scientific preparation. I am quite sure that all of the troubles and most of the successes which come in nursing service are related unmistakably to scientific understanding and thoughtfulness on the part of the nurse. Equally important is the quality of sympathy. Fortunately, this is inherent in woman. We need only to bring it out and to give it a scientific background. One question I have often asked myself with reference to the development of helpful qualities in a nurse is: does the present system of nurse education tend to stifle the

very qualities which are most necessary to good nursing? Is the student nurse surrounded by so many rules and regulations, most of which are negative in character, that she is concerned largely with what not to do rather than with what to do?

One other feature of nursing education which will require considerable thought is the separation of nursing education and nursing service in the hospital. The object of the former is the education of the nurse, while that of the latter is the care of the patient. Though the two have certain objectives in common, nursing education cannot be successful where the nursing service of the hospital is entirely dependent upon the school of nursing for the care of the patients.

THE IMPORTANCE OF THE DENTAL CLINIC IN THE DISPENSARY*

By F. C. ELLIOTT, PH.G., D.D.S.,
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If one may judge the future progress of medicine by its magnificent achievements of the past, but little thought is required to grasp the significance of the subject upon which this presentation is based. The ideal for which the allied professions are striving is the same goal, prevention. Therefore, one cannot comprehend what might unfold if this subject were received with enthusiasm by those who can conceive, develop and do in both professions. For the body of truth in its movement grows in volume like an avalanche.

Dentistry has worked ceaselessly and untiringly in an effort to do its part in establishing evidence for the dental origin of metastatic infections. The awakening of both professions to this problem and means of its solution has been due to the splendid work of Hunter, Goadby and others of the medical profession. They, in an effort to establish cause for many effects found, have unleashed perplexities which so far are sub judice such as (1) the problem of the pulpless tooth that is unassociated with other evidences of infection; (2) the problem of operative intervention when there are definite but slight evidences of periapical infection; (3) the problem of natural and induced resistance to dental caries; (4) the problem of conclusive evidence of metastatic infections from oral foci.

*Read in Section on Medical Education, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

*From the University of Tennessee College of Dentistry.

It would be fallacious for me to assume that there is among those present one who does not believe that the oral cavity is unrelated to the many metastatic infections to be found in the human economy. Yet it is true that there still remain some few in the medical profession who regard it as a convenient place to insert a fever thermometer, and in the dental profession a place to find teeth in which to insert metal plugs.

It is not surprising that there are those who still regard the theory of oral sepsis in its relation to systemic disease as a fallacy. For in all endeavors there are those who are fundamentalists. Miller,[1] in a search of medical and dental literature, could find no carefully compiled statistics on foci of infection, dental or otherwise, in relation to arthritis, not to mention the many other metastatic infections that may be due to focal infection. He feels that it is urgent that some tabulations be kept which will be exact, unbiased and of clinical value, not for a few weeks but for one-, two- or three-year periods.

For evidence of the varied opinions in the allied professions one need only review the many medical and dental publications to note the extreme differences of opinion on the many dental lesions with supposedly systemic manifestations.

While it is not within the province of this presentation to include herein an extensive report on these differences of opinion or disregard of oral foci, it will be of interest only as lending emphasis. Novitsky,[2] after much investigation, came to the conclusion that every tooth in which the pulp tissue was removed was a dead tooth. He states this as a fact. Yet previous and later findings have been to the contrary. This is a very radical statement, for in no instance has the work of Skillen, Hatton, Thomas, Noyes, Box or others found it to be the case. Such statements, unless definitely proven by many workers, are dangerous because there are those of the dental profession who for pecuniary reasons would readily lend support to them and from their position would influence patients and physicians. Many prominent physicians and dentists have accepted this wild hypothesis and are acting upon it daily.

Cecil and Archer,[3] in a review of 379 cases of arthritis, found only 33 per cent of cases which they felt were of dental origin. Sixty-seven per cent of these cases were of other origin. From these findings the question arises, when is it safe to allow pulpless teeth to remain *in situ?*

Haden,[4] Rosenow,[5] Barker,[6] Nakamura,[7] Cotton,[8] Graves[9] and many others point to dental foci as the cause of lesions elsewhere in the body. And still there are those who disregard this relationship or have an apathy toward real investigation of these relations. On the other hand, there are those who in enthusiasm accept such findings as final and condemn many teeth after a cursory examination when some remote chronic disease is present.

Many personal contacts with those in the medical and dental professions furnish proof of the lack of understanding of the close relationship of medicine and dentistry in the problem of metastatic infections.

I recall one instance related to me of a physician who, having local manifestations of pain in the lower molar region, asked his dentist to extract the lower first molar. The dentist, by careful examination, could not find sufficient evidence to warrant the extraction of this important tooth, but still the physician insisted. The dentist removed a filling which the tooth contained and, finding the tooth gave normal response, he filled the cavity temporarily with a sedative dressing. Upon the return of the physician, he told the dentist that he had been working on the wrong tooth, that the tooth he had in mind was the first molar. As the dentist had worked on the first molar, he questioned the physician and found that the physician had always regarded the third molar as being the first molar.

A mistake of this kind would not have occurred if some little consideration had been given dental nomenclature when this physician, a prominent man, had attended medical college. It is equally true that many dentists are not conversant with many medical terms in common usage by the medical profession.

However, in the colleges of today, especially the universities such as I am connected with, the dental students are receiving their first two years of instruction in the fundamental medical sciences with the medical student, from the same instructors. This association is doing much to bring about a common ground for the future physicians and dentists to discuss their related problems. In this connection while mentioning schools it might be of interest to you to know that five schools in Canada and fifteen in the United States now require two years' predental education and four years of dental education for the degree of Doctor of Dental Surgery. This increase in the undergraduate curriculum will in no way compare to the value of a dental clinic in the dispensary as outlined later. It increases the cost of dental service to the public and uses the time that the student might use for post-graduate instruction as an intern in some recognized hospital in the dental clinic, where his value to humanity would be much further increased than had he spent his time on subjects to be used little upon his graduation.

I do not wish to leave the impression that no consideration is being given to dental service in hospitals, for in the ninth annual report on accredited hospitals[10] by the American Medical Association it will be found that of the 6,665 approved hospitals, 2,016 have dental clinics. No information is given on the type of service rendered in these clinics, but it is assumed that in most instances it is surgical in nature and but little consideration is given to prevention and careful tabulation of findings based upon a recall of the patient and a further check-up made every one, two and three years.

In this connection it is well to mention that those who apply to the many dental clinics not in hospitals apply for some local symptomatic reason and not because of physical ailment. Much can be done here for preventive medicine, but there is a break in the chain between the medical infirmary and the dental infirmary, where those who are ill apply for medical service on one hand and on the other those who may have a chronic disease apply only for dental service.

Those in the educational field of medicine and dentistry know the limited time which is at their command for teaching the many subjects on their curricula, and for this reason feel that it is most improbable that additional subjects could be added to their course to strengthen this weak link in the chain. Yet, in a report by the Committee on Education of the American Association of Dental Colleges, Miner,[11] Dean of the School of Dentistry of Harvard University, Chairman of the Committee, reports that of the 81 medical colleges in the United States but 14 require from four to fifteen hours of teaching in dental subjects. The recommendations of the Committee are that more medical subjects should be taught the dental student and a 10-hour course in dental subjects should be taught the medical student.

Whether this can be a solution to the problem in question is doubtful. A curriculum so heavily overloaded as both are can hardly do justice to many more hours of instruction.

The solution seems to be in the universal establishment of dental clinics in the medical dispensaries. With their well appointed medical staff, the medical training is well in hand for the dental staff of the dental clinic. With a well appointed dental staff the allied groups could accomplish much by constant application to clinical problems, prove or disprove their laboratory findings and with a careful compilation of their findings produce a service of inestimable value to both professions. For, after all, have not the valuable findings of both professions been based upon years of study of not one but hundreds of cases both in the laboratory and clinic?

With this in mind, the following recommendations are given for your consideration, being gleaned from the plans which are now under way at the Memphis General Hospital, which is under the supervision of the University of Tennessee College of Medicine. These plans are being formulated by Dr. R. D. Dean, Professor of Pathology at the University of Tennessee College of Dentistry. It is hoped that these plans will be functioning not later than the next school year.

The dental clinic in the dispensary should include: (1) a well equipped clinic with modern conveniences for all types of dental work; (2) a chemico-pathological laboratory closely related to but not a part of the general laboratory; (3) a departmental head of experience with at least the degrees of both professions of medicine and dentistry; with this training a more balanced association could be established; (4) staff members who are recognized in their respective specialties; (5) dental and medical interns.

The dental clinic should function as a part of the medical infirmary and not as a separate unit having no connection with the infirmary. This is already the case in a few of the hospitals mentioned. The members of the clinic should meet with the medical staff members at the regular staff meetings and their problems should be a part of the medical program.

With a dental clinic of this type functioning as it can, a much better understanding of the dental problem could be obtained by the medical staff members and interns. They would give it more consideration and in time would present problems unknown today for further study which would be of much value in the prevention of disease.

Cost.—A clinic of this type will require a budget sufficient to allow it to function without being "cramped." In this connection Davis,[12] in a compilation of statistics on medical costs, finds that for every thirty dollars spent for treatment only one dollar is spent for prevention. Therefore, can one say that this would not be a wise investment?

For, as mentioned, prophylaxis in the medical dispensary at this time (so far as can be learned from the literature) is usually thought of in terms of the extraction of teeth. Here the remarks of Miloslavich[13] are of interest. He says: "Recently approximately 1,000,000 tonsils were removed in one year due more to autosuggestion than to proper scientific reasons." On this subject Miller[1] says: "There is now abundant evidence that removal of tonsils has little or no effect on chorea in children." No doubt many of the 1,000,000 tonsils mentioned by Miloslavich were removed as a treatment for chorea. Many teeth are also needlessly sacrificed.

Quoting from Miloslavich again:

"The term focal dental infection was formulated and already influences every medical thought and activity. The patient fears his own teeth, the physician points to the teeth and condemns them and the dentist extracts them. All visualizing an imaginary enemy. Should an enterologist today maintain that all infections could be traced to the intestines so abundant with bacteria (enterogenous focal infections) he would have a far more plausible basis for discussion, a far more plausible working hypothesis, than he who constructs an erroneous and harmful theory based on the presence of an apparently normal pulpless tooth. Meanwhile no one would attempt to eliminate the highly pathogenic bacteria which are ever present in the intestines. One pulpless tooth seems to be far more dangerous."

While it seems to us that surgery is a progressive specialty of medicine, I am sure the aim of surgery is to preserve and not to mutilate the body, and unless we are sure that teeth are the cause of some remote chronic disease, consideration should be given them and their usefulness to the patient. Would not dental clinics in the 7,000 hospitals in the United States be able in a measure to clarify the diversities of opinion?

I am sure that you agree that, while laboratory findings are important, clinical findings and proof of laboratory findings are also important. Hatton, while offering some definite laboratory findings, contends that they can be of value only when proven by clinical statistics properly evaluated over a period of years.

The dental clinic would not confine itself merely to the extraction of teeth, but to problems such as these: (1) the relation of mouth cleanliness to prognosis in a surgical case; (2) the relation of mouth health to surgical fields; (3) the value of mouth health to a decrease in the length of time of hospitalization; (4) the effect of systemic lesions on oral mucosa, which would aid dentistry in the treatment of so-called pyorrhea, which in most instances is a secondary manifestation of a systemic disease; (5) and above all would aid in establishing the definite relationship of the pulpless tooth to systemic disease. Only by a correlation of findings over many years with a definite follow-up system can this be done.

Not only would preventive medicine be aided materially by a program such as this, but also a training would be given the medical and dental interns obtainable in no other way. It would establish a happy correlation between the two professions so that they would together determine when we may save a tooth and when losing a tooth may save us perhaps from permanent injury or fatal disease.

SUMMARY

(1) Medical and dental literature is confusing to those seeking knowledge on when and when not to remove accessory organs of digestion.

(2) This confusion is due to a lack of cooperation on the part of some dentists and some physicians.

(3) There is no doubt that dental foci cause metastatic infection, but when and how remains unknown.

(4) The dental clinic can function profitably to the public, the hospital, the physician, the dentist and increase the knowledge of the intern in medicine and dentistry without affecting, without overloading his college curriculum.

From the evidence in the journals, from the findings of various committees, the properly organized dental clinic would be an important and helpful adjunct to all medical infirmaries.

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DISCUSSION (*Abstract*)

Dr. H. V. Noland, Louisville, Ky.—There is no question that the teaching of the relationship of dental infections and disease to the body as a whole is best carried on in the medical dispensary, because in this place we meet patients as we do in private practice and have an opportunity to stress the relationship of dental infections to systemic disease and to decide whether or not certain foci should be removed. There are a number of faults we have to contend with at the present time, the chief one being that focal infections, particularly from a dental standpoint, are not stressed so much as they should be in the first two years of medicine. The students come to us with the idea that any vague ache or pain throughout the body can be caused by a dental infection and if they can find a focus for that they let it serve as the etiological factor. That is due primarily, of course, to lack of experience. On the other hand, there is not as a rule in the average dispensary the close cooperation between the medical and dental departments that should obtain. This is in large measure due to lack of education on the part of the medical men and lack of education on the part of the dentist. The solution of that problem, as Dr. Elliott pointed out, is the establishment of a dental clinic the head of which should be a graduate in medicine and a graduate in dentistry. This is not practicable except from a purely teaching standpoint, because very few men going to dental school at the present time are willing to spend the time and the money to acquire both degrees. That, of course, can be worked out. It would be well, I think, to increase the time allotted to medical students upon focal infections having their origin in the mouth, with a closer relationship between the medical dispensary and the dental dispensary, doing more laboratory work and following each case to a definite conclusion. That requires a large budget and a large number of men, and in the average medical school, so far, at least, is not practicable. The final solution seems to me to be to devote more time to the consideration of dental subjects and to continue, as we are doing here, a discussion of the diseases which have a definite relationship to focal infections in the mouth. Those lectures should be given by some one connected with the medical department.

Dr. C. C. Bass, New Orleans, La.—There is no doubt that oral health service is a part of general health service, and whenever we undertake to separate it entirely from health service in other parts of the body we tend to defeat both of the divisions. A closer coordination between oral health service and health service in other parts of the body is absolutely necessary, and therefore a dental clinic is also a necessary part of any general dispensary. The dispensary should be prepared not only to render the health service for which the

individual applies, but should also go a little further than the patient himself can see. Many times the patient applies for something that attracts his attention, but is found to have something else underlying, perhaps some constitutional disease, that is very much more important.

Coordination between oral health service and general medical service to a large extent depends upon education of the medical profession with regard to the condition that actually exists in the mouth. A large part of the medical profession does not realize the extent of the disease in the mouths of almost every patient we have. Those of us who were graduated a good while ago and have established our line of thought and practice will find it difficult to become interested in new things of this kind.

Medical students, the future medical profession of the country, should have more than we are now giving them in many if not all of the medical schools of the country. There certainly should be a department of stomatology (or dentistry, if we choose to call it that) in every medical school. The senior medical student should not only send patients to the dental clinic, but should see what goes on in the dental clinic. In that way only can he be impressed, I believe, with the extensive disease that exists in his patients. If the medical student could see more efficient oral health service to his patients he would appreciate more and more its importance and promote it more and more, either by carrying out some parts of it himself or by insisting that the dental profession should do it.

Dr. E. Emmerick Von Haam, Little Rock, Ark.—I am from Vienna, Austria. Every student over there has full dental training and is supposed to be able to extract teeth. It takes a student several years to specialize in dentistry.

Dr. Elliott (closing).—I believe the establishment of dental clinics in all hospitals should be considered. Dr. Noland and Dr. Von Haam suggested that the dentist have both degrees in this country. We should not increase the cost of education in this way, unless by so doing we can render better service to the public.

Oral health service is most important. Diseases of the pulps of the teeth are as much a part of the study of medicine as diseases of other parts of the body. Therefore, to relegate this study to a mechanic seems to me unwise. Members of the medical profession have not grasped the significance and importance of dental mechanics. We speak of dental mechanics and think of mechanics as rather foreign to the profession, but if due consideration is given to the fact that all mechanical restorations are to become a part of the oral cavity closely associated with living tissue, it would seem wise to have the so-called dental mechanic well trained in the fundamentals of biology. This, after all, is the foundation upon which he is building.

Therefore, the dentist should understand when to call a physician, and the physician when to call a dentist.

Establishment of the dental clinic in the medical dispensary would hasten this cooperative association.

THE CORRELATION OF MEDICAL AND DENTAL EDUCATION*

By J. T. O'Rourke, D.D.S., F.A.C.D.,
Louisville, Ky.

The question of correlating medical and dental education is one which has been often discussed, but attempts to effect a proper relationship have been until the last decade for many reasons unsuccessful. As this correlation deals on the dental side with courses in the medical sciences, and on the medical side with those of a dental nature, the securing of a close relationship is dependent on values given by faculties and practitioners.

Since the establishment of the first dental school at Baltimore in 1840, there have been included in the curricula of dental schools courses in the medical sciences. To both the physician and dentist the reasons for the existence of such courses were somewhat vague. The dentist, committed for the most part to work of a reconstructive nature, accorded them little value. The faculties of dental schools, and naturally the students as well, placed emphasis on courses which dealt directly or indirectly with the then accepted objective, mechanical reconstruction and replacement. Students looked upon the fundamental and medical science courses as impractical and useless. The teaching of such courses was difficult and for the most part unsuccessful.

The physician and medical teacher at this time accepted dentistry as a profession whose objective was the rehabilitation of the oral hard tissues, and they naturally looked upon the inclusion of such courses as more or less meaningless, and the teaching of them to rather disinterested classes as pure drudgery.

It was not until 1911, when John Hunter and others stirred both medicine and dentistry to a recognition of the many possible sources of oral foci of infection that could exist, that any recognized logical reasons for correlation came into being. Since that time the findings of medical and dental investigations have so altered the field of dentistry, changing its objective, and enlarging its responsibilities, that none but the ignorant would deny the value of efficient correlation of medical and dental education. The

*Read in Section on Medical Education, Southern Medical Association, Twenty-Fourth Annual Meeting, Louisville, Kentucky, November 11-14, 1930.

*From the University of Louisville Dental School.

modern physician and dentist are cognizant of points in public health where the professions are interdependent, and know that the objective of dentistry is, though in a narrower scope, that of medicine, with the added and incidental element of replacement and reconstruction.

Some may argue that teachers of medical sciences had in the past knowledge of the value of such courses to the dental student. In a few cases, perhaps, it may have been true, but in general we may point to the absence of certain dental courses in the medical curriculum as evidence that dentistry was not at that time considered to be of importance from the point of view of public health.

The curricula of both medical and dental schools have as their basis the health requirements of the public. The dental needs of the public, for years of a reparative and esthetic nature, were followed by a demand for the prevention and elimination of septic alveolar changes accompanying so-called "dead teeth". The many possible systemic changes which might arise from these foci or secondary bacterial colonizations, have made it imperative that dentistry and dental education give greater consideration to the medical sciences. Following the extreme radicalism of the "dead tooth" era has come conservatism and with it a realization that further neglect of biologic responsibilities would be indicative of unwillingness to accept its obligations.

While in former years courses taught by medical teachers were considered as useless units of "theory," their existence today is based on the fact that promotion of public health demands that dentists, in their much altered profession, be as thoroughly trained in the performance of the health duties of their practice as are medical specialists in any particular field.

Though courses dealing with the mechanical phases of dentistry are still holding prominent positions in the curriculum, dental faculties are emphasizing in mechanical procedures the value of medical understanding. To the teacher of medical courses and to physicians this may not be clear. However, if the general relation of the mechanics of surgery to medicine be considered, the comparison becomes obvious. We will not state that there is full recognition of the value of medical understanding by all dental teachers. This may not come for some years. However, we may, on the part of many medical teachers, point to a lack of knowledge of dental progress and the attendant features which have closed the long existing gap between the biologic and mechanical courses in dental schools.

Assuming that dentistry and dental education and in fact medicine and medical education were not aware of any great dental relationship to public health until 1911, and that they now are cognizant of the importance which certain oral conditions may bear to general body health, it is not difficult to conclude that, however weak may have been the correlation between medical and dental education in the past, a close and effective relationship is at present imperative and its attainment is dependent upon the attitude of medical and dental teachers.

We must consider the fact, regardless of what faculties may think, that so-called dental mechanics and the results of their reconstructive efforts are of value only in so far as they meet certain biologic and therapeutic demands. Mechanics for mechanics' sake should no longer exist, and does not to the modern dentist and teacher, who recognize that in the field of the dentist not a single medical point exists which may not be influenced favorably or unfavorably by their efforts. Precision in dental mechanics is nothing less than therapeutic exactness. It is the means, not the end.

It is evident from the foregoing that modern dental education is attempting to build a background of medical understanding around the bio-engineering problems of those being trained. In the development of this background, teachers of the medical sciences occupy a strategic position, no less in importance than those teaching the so-called strictly dental courses. From this we might logically judge that increased contact with medical courses by dental teachers, and greater familiarity with the field of dentistry by others, is certainly not undesirable. The securing of the desired correlation will be impossible without mutual understanding and unity of effort.

Can dental education in any way aid medical education? This is a question often asked, and the absence of dental courses in the medical curriculum has been taken as evidence that the answer is negative. It seems logical to expect on the part of the medical practitioner certain knowledge in the dental field, for even though he has adequate bio-medical training, the ability to judge certain dental conditions is to a fair degree dependent on special knowledge of the oral structures.

Many medical schools are at present offering courses of a dental nature. We are not familiar with the values given such courses by

medical students and teachers. However, acknowledged interdependence at certain points in practice will doubtless in the future emphasize their merit.

Dental education, then, is seeking to overcome traditional obstacles in the path of dentistry as health service. Medical education, which has long cooperated with it, will doubtless see the need for greater training in certain phases of dentistry. Here arises the question of degree of correlation.

It is being suggested by many that the demands of public health which make imperative a closer union between medical and dental education will eventually place dentistry in the field of conventional medical specialties with the full medical curriculum for undergraduate study.

The premise that dentistry should possess an adequate biologic background is well taken. Arguments to the contrary could only be based on ignorance or prejudice, but to speak of incorporating fully into the field of medicine a profession involving the peculiar bio-mechanical characteristics of dentistry, without anticipating rationally the effect of such a union upon both professions and the public, would certainly be premature.

It has been suggested that the future specialist in dentistry could delegate to one or more technicians the mechanical phases of reconstruction and replacement, while he cared for the strictly medical features. The arguments for such a plan state that the technicians could be compared with opticians, makers of artificial limbs and certain other devices prescribed by physicians. Theoretically perhaps a plan of this order should operate successfully. However, when one considers that reconstructive service incident to dental practice may give rise to as many pathologic changes as it does benefits, depending upon the degree of biologic and medical background had by the operator, it should be obvious that the supervised efforts of technicians, lacking the desired background, would be inadequate. While it is true that a technician could perform certain laboratory duties, there is no more logic in assigning to him operative procedures on human tissues than there is for the same plan to hold in any specialty of medicine.

To argue that technicians can be trained to meet the demands for safe dental operations, and that all obstacles to the plan are therefore removed, is absurd. Though it is granted that economic questions are not compatible with professional ideals, the fact remains that the training required by the proposed technicians, and the graduate study necessary for those who may wish to specialize in dentistry, bring to the front very forcibly the probable economic relations between the specialist, technician, and layman.

It is apparent that those advocating such a plan discount the fact that dentistry and dental education, and in fact medicine and medical education, were not aware of any great dental relationship to public health until 1911. They neglect also a consideration of the fact that the majority of the dental profession were trained and graduated prior to the acceptance of dentistry as health, as well as reparative, service. Medicine in its present state did not come into being overnight. Its history is replete with struggles against professional ignorance, skepticism, and empiricism. To deny that dentistry, measured by the progress it had made since it was delegated certain biologic responsibilities, is unable properly to adapt itself and meet its obligations, is indicative of something other than sound logic. It can and will meet public need, but one must not forget or deny that, correctly seen, it is a new profession, entitled to conservative rather than radical judgments in estimates of what it may or may not do in the future.

Medicine is facing many problems today. Among them is that which deals with the question of so-called socialization of medical practice. Another perhaps of equal importance is the cost of medical education which will doubtless not decrease. To impose on a profession which must answer such questions, the burden of dental service would obviously make difficult a solution of its ever-increasing social and economic problems.

Correlation of medical and dental education, with advances in each, coupled with the thought that curricula after all exist primarily for the public and not the student, will work to the advantage of dentistry and we hope to medicine as well.

DISCUSSION (*Abstract*)

Dr. C. C. Bass, New Orleans, La.—I must take a somewhat pessimistic view as to the outlook and possibilities of correlation between medical education and dental education as they are being conducted at the present time. They are far apart in their objectives in the minds of those who are conducting and directing them. Not that there should not be a correlation between them, but that the correlation is difficult largely

because of the fundamental training and the fundamental objects of the service rendered. The dental profession today is largely merely a mechanical profession. The dental profession and dental practice are interested largely in repairs and replacements, or reconstruction. The loss of teeth is a result not merely of the diseases of the teeth that attract 90 per cent of the time and thoughts and effort of the dentist. The larger percentage, perhaps, of teeth are lost from disease of the supporting structures, depending not upon diseases of the teeth, perhaps not actually observed and hardly recognizd by the average dental practitioner. The teeth are lost from diseases of supporting structures and other diseases of the mouth.

The thing that people need is, after all, oral health service; a service that will enable them to keep healthy mouths, including, of course, healthy teeth. Now, dentistry hardly contemplates complete oral health service. The term for oral health service that is growing in use is stomatology. Stomatology deals with diseases of the mouth, including the teeth; it contemplates and promotes the oral health service, the thing that humanity needs. To give the patient the purely dental service, without the other, is perhaps to enable him to keep some of his teeth longer and put others back in place of those that were lost, but it does not keep him from losing all teeth. I believe that stomatology should become a specialty of medicine, as indicated by Dr. O'Rourke, and until such time as it does become a specialty of medicine it will be quite difficult to obtain any great amount of correlation between dental and medical education. There have been some steps in this direction and a certain amount of progress has been made. There is no reason why a man who is going to deal with diseases of the mouth should have any less knowledge of physiology, pathology, bacteriology, and so on, than the man who is going to deal with diseases of the eye, nose, throat, skin, or who is going to practise urology or various other specialties. I believe it is absolutely essential, if oral health service is ever to be available to humanity, to have it based upon a four-year general medical education. After a man has gone through a four-year course he knows little enough of disease, anyhow, and that should be the foundation for oral health service or stomatology. It is quite possible that a great deal of the dental work will be taken care of by those who have neither a general medical education nor a general dental education, but by good technicians.

One of the greatest needs of humanity today is oral health service, which, as I see it, cannot be obtained until we have a larger number of people entering into the specialty of stomatology with a foundation of general knowledge of disease, especially pathology and methods of dealing with it.

Dr. Russell H. Oppenheimer, Emory University, Ga.—The work of the dentist and the physician is closely related. Dental disturbances may be the reflection of a medical condition, while the medical disease may have its origin in diseased teeth. Whether the suggestion of Dr. Bass that departments of stomatology be organized is a good solution is questionable. It seems more logical that dentistry of the future will be considered a specialty of medical education and that preparation for the practise of dentistry will be similar to that for the practise of any other medical specialty, as, for instance, dermatology.

Dr. Charles Phillips, Richmond, Va.—One important contribution which the medical schools might make to the idea of correlation is to instruct our medical students in more of the practical aspects of the fundamentals discussed under stomatology. I find that the students, from the first to the senior year, know very little about the teeth and medical aspects of modern dentistry. We ought to have some medical man, perhaps a graduate in both medicine and dentistry, to take care of that field, and then it will be handled as a complete subject.

Dr. O'Rourke (closing).—Those who advocate the specialty of stomatology, it seems to me, are rather impatient. It has been but nineteen years since any health relationships were recognized in dentistry and the profession of dentistry has changed greatly during this period.

I think that Dr. Bass' statement was exact when he said that dentistry has been concerned principally with mechanical procedures. Dental education, however, is not altogether governed by practice. Attempts have been made to base its work on public need regardless of what is being done in practice.

As to the technicians' doing dental work, it is equivalent to giving them loaded guns, for only a dentist can realize the damage that may be done by technicians who, though highly skilled in mechanics, are lacking in biologic understanding. Furthermore, I do not see how any one man can correctly supervise a group of technicians.

Different plans have been tried out in many European countries and in many of them the public is getting exceedingly poor dental service.

Efforts in dental reconstruction must be backed by medical understanding if every operation upon either the hard or soft tissues is to react to the benefit of the patient. This is recognized by dental education and from this you may judge that dental schools are actually teaching stomatology in the true sense of the word.

Southern Medical Journal

JOURNAL OF THE
SOUTHERN MEDICAL ASSOCIATION

Published monthly by the Southern Medical Association, Empire Building, Birmingham, Ala. Annual subscription $4.00. Single copies 35c each.

Entered as second-class matter at the Post Office at Birmingham, Ala., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1106, Act of October 3, 1917, authorized December 20, 1921.

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Vol. XXIV OCTOBER 1931 Number 10

EDITORIAL DEPARTMENT

SOUTHERN MEDICAL ASSOCIATION
Twenty-Fifth Annual Meeting
New Orleans, Louisiana, November 18-20, 1931

THE NEW ORLEANS MEETING: "A REMEDY FOR STATIC MINDS"

"Things in nature rarely are static; they increase or they decrease; they grow or they decay; they progress or they retrogress. Man's education in many respects resembles things of nature; rarely is it static; when knowledge does not increase, almost always it decreases. Physicians should remember this and make every effort to keep out of the static state and on the side of increase, of growth, of progress.

"Physicians can be divided into two great groups, those that are learning and those that are forgetting; those that each year know more, and those that each year know less. There seems no third group, those that are stationary.

"A few physicians increase in knowledge from within and grow from their own doing. These are the innate investigators. The rank and file require outside help to grow and to progress. Books, *meetings, contacts, discussions,* teachers are our armamentarium for progress. Like the 'spring tonic' of past days, all of us need some of this medicine, at least annually, better if it comes more frequently. A large majority of physicians know their need and seek treatment."—Dr. Henry A. Christian, Harvard University Medical School, "A Remedy for Static Minds," in *How to Live.*

After seven years, New Orleans, the Crescent City, is again host to the Southern Medical Association. The seven years have brought many changes. The new municipal auditorium, the most modern in the South and one of the most modern in the whole country, makes it possible for all activities to be under one roof: not only the general sessions and the sections, but the scientific and technical exhibits, and the main social function.

New Orleans has doubled her hotel facilities during the past seven years, so that all are assured of comfortable accommodations accessible to all the activities of the meeting.

New Orleans has increased her medical armamentarium. Tulane has moved into a new and modern and most complete building on Tulane Avenue next to Charity Hospital, a building complete in every respect and previously described by Dr. Bass in the JOURNAL.* The University of Louisiana will have a full four-year medical department beginning this fall with a modern and complete building within the grounds of Charity Hospital. New Orleans has improved its hospital facilities and broadened the scope and effectiveness of its public health work. The Government is now completing a new Marine Hospital.

Realizing the necessity for conserving the physicians' time, the Association approved the suggestion of the Council that the meetings in the future occupy only three days, Wednesday, Thursday, and Friday. Conforming to the action of the Association, the New Orleans meeting will occupy three days, November 18 to 20, inclusive. The first day there will be a general clinical program, a program arranged by the President of the Association, and several other meetings. On Thursday and Friday, sections will meet in half-day sessions, and on Friday, running concurrently with the sections, a general program by New Orleans physicians arranged by a local Clinic Committee will be given. There will be no curtailment of the scientific activities. What has formerly been presented in four days will now be presented in three, and all under one roof, enabling physicians to go easily and quickly from one program activity to another.

The President's reception and dance, the outstanding social function of the meeting, will be held on Wednesday evening, preceded by a short session featuring the President's address. Thursday evening has been given over to alumni reunions. Dinners will be arranged for all the medical school groups present in sufficient number to justify a group meeting. It is anticipated that Tulane will make this a "home coming" occasion and that a large percentage of her graduates in the South will be present.

*Bass, C. C.: A New Departure in the Medical Curriculum: Presentation of Clinical Subjects at Tulane. Sou. Med. Jour., Vol. xxiii, No. 10, October, 1930.

The American Society of Tropical Medicine, the National Malaria Committee and the Southern Association of Anesthetists meet conjointly with the Association this year. In the general clinical sessions, the nineteen sections and conjoint meetings and the scientific exhibits, every phase of medicine and surgery will be presented, the new things and the new and better application of the old things.

There will be golf tournaments for both the physicians and the ladies and a trap shooting tournament with the introduction of a new feature, skeet shooting. There will be special entertainment for the visiting ladies, this being under the direction of the Women's Auxiliary to the Orleans Parish Medical Society.

And so the profession of the South is again called to rally for the annual gathering of the medical men of the South. The Southern Medical Association meeting in New Orleans, the antidote for static minds, is a necessity, not a luxury.

AGRAMONTE: CUBA'S GREAT PHYSICIAN

Aristides Agramonte, the last survivor of the four immortals, Walter Reed, James Carroll, Jesse Lazear and Agramonte himself, who in 1900 proved the mosquito transmission of yellow fever, died of a heart attack in New Orleans on August 17 at the age of 63. Agramonte, a native born Cuban of pure Castilian ancestry and a gentleman of culture, a graduate of the University of Pennsylvania and a physician of unusual scientific attainments, was pathologist to the United States Army Yellow Fever Commission, and like his confreres risked his life that others might live. Carroll voluntarily acquired yellow fever by allowing himself to be inoculated by female *Aedes aegypti*, formerly known as the *Stegomyia fasciatus*, or calopus, mosquitoes that had bitten yellow fever patients. He nearly died from the attack and a few years later succumbed to what was thought to be a sequel of yellow fever. Lazear became infected accidentally and died of yellow fever. Agramonte, who had performed many autopsies on yellow fever victims, including one upon his dead friend, Lazear, was not deterred from allowing infected *Aedes aegypti* mosquitoes to bite him in order to establish the fact that he, who had had yellow fever many years before, was immune to the disease. He thus further clinched the experimental proof that Dr. Carlos Finlay, of Havana, was right in his contention that a particular variety of mosquito, then called *Stegomyia fasciatus*, was the essential etiological factor in the disease.

When the United States Army occupation of Cuba ended, a grateful Cuban Government placed Agramonte in charge of the efficient health department of Havana which had been organized by Gorgas, who had freed Havana and the island of Cuba from yellow fever for the first time in more than a century. Agramonte maintained the high standards of sanitation in Havana that Gorgas had initiated, but in a few years, after a change of administration in the Government of Cuba, Agramonte went into private practice and became the leading practitioner and the best beloved physician in Havana.

In 1924, Agramonte, Henry Rose Carter, of whom Gorgas said, "He knows more about yellow fever than any man who has ever lived," and Hideyo Noguchi, who later sacrificed his life in the study of yellow fever, were an outstanding trio among the great men called together by the lamented William C. Deeks. Deeks, the Medical Director of the United Fruit Company, had gathered these men from "the four corners of the globe" for a two months' conference and study of the diseases which prevail in tropical America, that is, in the West Indies, Central and South America. The addresses of those three men,* all of whom are now dead, at the Kingston, Jamaica, meetings of the Conference, make up the most valuable contribution to the literature of yellow fever since the report of the Walter Reed Commission.

Agramonte moved to New Orleans a few months before his death to become Head of the Department of Tropical Diseases in the new School of Medicine of the University of Louisiana. Having been Professor of Bacteriology and Experimental Pathology in the University of Havana for thirty years, Agramonte was admirably prepared for the upbuilding of a department of tropical medicine in an American university, and it is to be regretted that he could not have lived to fulfill his mission in New Orleans.

The United States Government showed its gratitude to Agramonte for his services as a surgeon in its Army during the American occupa-

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*Transactions of the International Conference on Health Problems in Tropical America, pp. 169-240, published by the United Fruit Company, 1924.

tion of Cuba by granting him a pension and by giving him the Congressional Medal, an honor that has been bestowed upon few physicians. Agramonte delighted to entertain American physicians who visited Havana, and many who have enjoyed his hospitality in the Cuban capital feel a personal loss in his death.

Agramonte belongs to the ages and when, as Gorgas predicted, with the elimination of communicable diseases the tropics become the centers of population of the world, millions will bless his name as among the foremost of those whose researches made tropical and subtropical countries safe places in which to live.

GLEANINGS FROM RECENT JOURNALS

Sodium Amytal in the Treatment of Insanity. A few years ago a certain "truth serum" was considerably discussed, "serum" being the lay classification for any medication which is not taken orally, from hay-fever and typhoid vaccines to intravenous anesthetics. It was reported that during twilight sleep criminals could not lie about their crimes, and the true sequence of their pasts could be quickly and accurately learned. "The serum," however, does not seem to have attained any widespread use in criminology.

Another narcotic has been suggested to relieve the inhibitions of lunacy. In 1929, according to Lindeman,[1] of the University of Iowa, iso-amylethyl barbiturate was introduced to psychiatry by Lorenz and Blackwenn. They reported that certain insane patients showed behavior changes after taking sodium amytal. Lucid intervals were observed in catatonic dementia precoxes, with improvement and even recoveries. At times, small doses which were insufficient to induce sleep produced the desired therapeutic effect.

Lindeman studied the results of administration of the drug in small doses to normal individuals and to patients in certain psychiatric states. It was given slowly in a solution containing one grain to a cubic centimeter, and the injection was stopped as soon as there were signs of psychic changes. In patients and in normals, the early changes observed were speech defects, nystagmus, disturbed eye muscle coordination, mild ataxia, and the objective appearance of mild fatigue. The normals reported that they had felt serene and well under the influence of the narcotic, confidential, and unable to refuse to answer questions. The outstanding effect in both psychiatric patients and normals was an increased willingness to communicate. Catatonic patients who had been mute for months became talkative and lost their rigidity and cataleptic symptoms. The drug gave access to thought material of the patients which could be utilized for subsequent psychotherapeutic work; and the induced temporary relaxation was beneficial.

In intravenous use, it is reported that the rate of injection controls the toxicity.[2] The more slowly the drug is introduced into the circulation, the less the danger of toxic effects.

Amytal itself has a strong antidiuretic effect on dogs and may cause retention of substances ordinarily excreted through the kidneys.[3] One is warned that caution should be used in employing it as anesthetic in kidney operations.

Sympathetic Nervous System and Lactation. In 1929, Cannon and his co-workers reported that after removal of the sympathetic nervous system of the cat, dog or monkey, they seemed to live indefinitely as normals. Their behavior, health, and abilities, blood sugar and basal metabolism were about the same.

Reproduction and lactation immediately after the operations were reported as normal. Puppies born six months after, however, seemed to obtain little milk, and died. A cat which bore young twenty months after sympathectomy, had no milk at all, and took no interest in her young.[4]

The maternal instinct, which is possibly the source of all the kindly and altruistic impulses of humanity, thus failed with the failure of the milk supply after extirpation of the sympathetic nervous system. This part of the living organism becomes, then, possibly, one of the chief mechanisms through which the higher emotions function.

Measurement of Alcoholic Intoxication.—In previous times, drunkenness could be determined

1. Lindeman, Erick: Psychopathological Effect of Sodium Amytal. Proc. Soc. Exper. Biol. and Med., 28:864, June, 1931.

2. Swanson, E. E.; and Shonle, H. A.: Oral, Rectal, and Intravenous Administration of Sodium Iso-Amylethyl Barbiturate (Sodium Amytal). Jour. Pharm. and Exper. Ther., 41:289, 1931.

3. Marx, Helimut: Effect of Iso-Amylethyl Barbituric Acid (Amytal) on the Excretion of Water. Ibid., 41:483, 1931.

4. Cannon, W. B.; and Bright, E. M.: A Belated Effect of Sympathectomy on Lactation. Amer. Jour. Physiol., 96:319, May, 1931.

absolutely only by examination of the alcoholic content of the brain post-mortem. Gettler and Freireich,[5] of Bellevue Hospital, New York, report a technic of measurement of alcoholic intoxication during life by determining the alcohol in a sample of spinal fluid, which they say varies directly with the degree of intoxication.

The sampling of the fluid might also be used as a punishment for the crime.

Vitamin B and the Testicular Hormone.—The appearance of the cells of the prostate and seminal vesicles of the rat, according to Moore and Samuels,[6] of the University of Chicago, is dependent upon the supply of sex hormone from the testes. In castrated animals, cytological changes of these tissues are observed, which may be prevented by injection of an active testicular hormone. The appearance of the cells is characteristic and the picture is so constant that it may be used as a test for the activity of hormone preparations.

Moore and Samuels found that a chronic vitamin B deficiency induced similar degenerative changes in prostate and seminal vesicles, giving them the appearance of those of castrated animals, though the testicles remained normal and contained motile spermatozoa. It was thought that the testes of the B-deficient animals, in spite of their normal appearance, might be failing to secrete the sex hormone.

Upon injection of the testicular hormone into the vitamin B-starved animals, without changing the dietary, the prostates and seminal vesicles again became normal, bearing out Moore and Samuels' hypothesis.

It will be recalled that a hormone of the anterior pituitary gland is specifically gonad-stimulating. The sex hormones of the gonads are not secreted in the absence of the anterior pituitary hormone. To determine whether testes or anterior pituitary were at fault, hypophyseal hormone was injected into the B-starved animals without testicular hormone, and the cells of prostate and seminal vesicles again became normal. The steps of physiological failure were then apparently in this order: the fundamental defect of vitamin B starvation, as far as traced in these studies, was upon the hypophysis. Degeneration of the anterior lobe of the pituitary was followed by failure of production of its testicle stimulating hormone, and consequent failure of hormone production by apparently normal testes, with the subsequent sign, tissue changes in seminal vesicles and prostate.

Similarly, female rats on a B-free diet had no estrual cycles and examination of their ovaries showed only atretic follicles.

The relationship of vitamins and endocrines is undoubtedly a close one, though a guess could hardly be hazarded as to its nature. In the absence of vitamin D, the parathyroid glands are enlarged. In vitamin A deficiencies there are thyroid changes. One of the effects of vitamin B deficiency, as described above, may be overcome by substitute endocrine therapy, either with the pituitary or testicular hormone. It is probable that many endocrine disorders may be traced to dietary deficiency as the original injury.

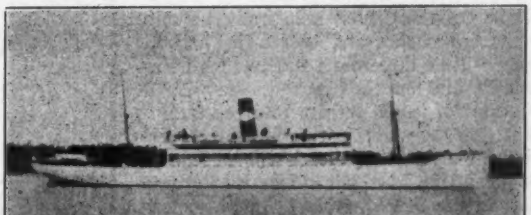
5. Gettler, A. O.; and Freireich, A. W.: Determination of Alcoholic Intoxication During Life by Spinal Fluid Analysis. Jour. Biol. Chem., 92:199, July, 1931.

6. Moore, C. R.; and Samuels, L. T.: Action of Testis Hormone in Correcting Changes Induced in the Rat Prostate and Seminal Vesicles by Vitamin B Deficiency. Amer. Jour. Physiol., 96:278, Feb., 1931.

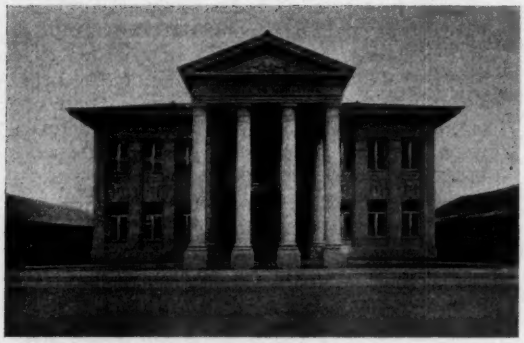
The Panama Tour

AFTER NEW ORLEANS—PANAMA

At the annual meeting last November the Association approved an action of the Council authorizing the Secretary-Manager to arrange, if he deemed advisable, an official post-convention trip to a point or points in the Tropics. After careful consideration, the Secretary-Manager deemed it advisable to arrange such a post-convention tour. And so the Southern Medical Association offers its members and friends an official tour to Panama and the Canal Zone with a call at Havana. The tour has been carefully worked out, is complete in every detail, will be



The S. S. Heredia



Gorgas Memorial Laboratory of Tropical Medicine

taken without a rush and will be found to be most enjoyable and restful.

The tour will be limited to seventy people, the maximum ship facilities available to us for the tour, and will be made up of physicians, their wives and families and friends, a congenial family party of such size that all may know and enjoy each other.

The S. S. Heredia of the Great White Fleet, United Fruit Company, has been selected as the ship for the tour. It is one of the largest and most commodious ships out of New Orleans to the Tropics; its passenger accommodations are excellent, and all who take the tour will be delighted with the ship and the service it will give. Think of a wonderful Thanksgiving dinner aboard ship on the Caribbean sea!

The ship will sail Saturday, November 21, at 12:00 noon, the next day following the close of the New Orleans meeting, and will reach New Orleans on the return trip about noon on Friday, December 4. There will be six or seven hours in Havana on Monday, which will give ample time to see and appreciate Havana proper. A beautiful view of the City is seen from the ship as she approaches and enters the harbor. There will be three days and two nights in Panama and on the Canal Zone with a program of sight-seeing and entertainment. A banquet, with dancing, entertainment and refreshments, will be held at the beautiful Miramar Club in Panama City on the first evening, with physicians and their wives of Panama and the Canal Zone as the guests of the tour.

The clubs of Panama and the Canal Zone will be open to physicians and their guests on the tour, not only the social clubs, but the golf clubs.

The Gorgas Memorial Laboratory of Tropical Medicine, the Gorgas Hospital (U. S.), the Santo Tomas Hospital (Republic of Panama) and the Panama Hospital (Herrick Clinic), will arrange interesting medical material for those on the tour. No set program is contemplated, but things that will interest medical men at the laboratories and hospitals will be made available.

This will be an all-expense tour. Every item of expense has been carefully considered and provided for, including tips, expected honorariums, both aboard ship and at hotels, all meals, all sight-seeing, greens fees and caddy fees for physicians who play golf, everything except items of a purely personal nature. "Refreshments" at social clubs and at the nineteenth hole at the golf clubs are personal matters.

The Route of the Tour

The service in every respect, the sight-seeing, the hotels and everything, are the best available, have been purchased at the lowest price possible for the class of service, and the tour is being priced to the Association members and their friends at the lowest possible figure.

The Secretary-Manager has prepared a folder giving complete information about the tour, the program by days, the cost and other information. It is now available from the Association office, Birmingham, Alabama, and will be sent promptly to any one asking for a copy. If interested in the tour, write at once for the folder.

New Orleans— Where We Meet

MEDICAL NEW ORLEANS*

For many years New Orleans has occupied a high and brilliant position in the medical world of the Nation and of the South. It has been regarded by those who are acquainted with the daily accomplishments of medical science and its objectives as one of the outstanding centers of medical learning and one of the champions of its development and advancement.

Bitter experience and disheartening occurrences in the early days of New Orleans' struggle for existence in the face of numerous opposing forces that sought to undermine and destroy its health have no doubt in a way been responsible for its early appreciation of the value and worth of medical knowledge and education. The history of New Orleans is a volume filled with pages of sorrowing and depressing cases of disease and pestilent scourges with which it has had to battle. But New Orleans today has met every obstacle fairly and squarely and has outguessed, outranged and overcome its opponents handsomely, whether they were visible or invisible, imaginary or actual.

To combat the sources apparently seeking its destruction, New Orleans became medical-minded and medical-conscious, as was evidenced by the foundation of the "Hospice de Pauvres" as early as 1737, nineteen years after the city was founded by Bienville. It was replaced after its destruction in a hurricane in 1779, finally being succeeded in 1832 by what is today the New Charity Hospital of Louisiana, an institution noted around the world for the wide opportunity it affords for study and experience in medicine. The present main building of Charity Hospital was erected in 1832, and the institution has been expanded and developed consistently to meet the demands of the times.

Notable accomplishments along the road to advanced medical pre-eminence in recent years are the construction of the Hutchinson Memorial Building, housing the Medical School of Tulane University and adjoining Charity Hospital under the leadership of Dr. C. C. Bass, Dean; the creation and foundation of the Louisiana State University Medical Center as the Medical Department of Louisiana State University, and construction of a magnificent building to house it on the grounds of the Charity Hospital, with Dr. Arthur Vidrine, Superintendent of Charity Hospital, Dean, making both medical schools conveniently and excellently situated for the education and training of the students of medicine of this day, and adequately fitting them for carrying on the burdens of safeguarding the health and of future advancement of medical art.

A new $2,000,000 Marine Hospital is now rising on the site of one of the first of these institutions in the country. They were originally established to care for needs of the men who manned the ships of the great American Merchant and those of foreign countries who went down to sea in ships in order that the trade and commerce of the nations might be carried on.

Many celebrated scientific medical accomplishments have been made in the Charity Hospital and in the famous De Roaldes Eye, Ear, Nose and Throat Hospital, as well as in the many other fine hospitals of the city, including Hotel Dieu, Touro Infirmary, Mercy Hospital, the French Hospital, and the Baptist Hospital. New Orleans-educated physicians and surgeons have made names for themselves and achieved international fame for their work. Many are graduates of the Tulane Medical School, which enjoys an extensive reputation. Such men as Dr. Rudolph Matas, fellow of the American College of Surgeons and a past president; Dr. C. Jeff Miller, incumbent president; Dr. Joseph A. Danna, Dr. C. C. Bass, the late Dr. R. C. Lynch and many others have won the admiration and thanks of a suffering world.

*By J. Walker Ross, Jr., Convention and Visitors' Bureau, New Orleans Association of Commerce.

The Orleans Parish Medical Society composing the medical fraternity of New Orleans is an active, aggressive body of men continuously alert to the needs and demands of modern medical science. Dr. Emmett Lee Irwin is President and Dr. H. T. Simon, Secretary. Its work is actively supplemented in the City and throughout the State by the Louisiana State Medical Society, of which Dr. S. C. Barrow, of Shreveport, is President, and Dr. P. T. Talbot, of New Orleans, Secretary.

Other medical agencies constantly alert to protect the health and sanitation of the City and State with results obvious in the particularly low death rate prevailing in the City and State in modern times are the Board of Health of the City of New Orleans, of which Dr. William H. Robin is Chairman and Superintendent, and the Louisiana State Board of Health, of which Dr. Joseph A. O'Hara is President.

The United States Public Health Service, a Federal agency upon which the health of the Nation depends to a material extent, is prominently identified with the maintenance of the high standard of health in New Orleans through the medium of its operation of the United States Marine Hospital and the quarantine station in the port protecting this part of the country from the importation of plague or disease virulent in many foreign countries through the port by inspection and fumigation of arriving vessels and the treatment and isolation of cases considered dangerous. All seamen who may come into the port in ill health or who may be seized with illness while on duty on vessels serving the port are given care and attention in this great Federal institution. Dr. T. B. H. Anderson, of long experience in public health work in the country, is Superintendent of the Marine Hospital at New Orleans.

NEW ORLEANS HOTELS

If one writes to the hotel of his choice and does not hear within a reasonable time, or that particular hotel has reservations to its capacity, write to Dr. W. H. Seemann, 837 Gravier Street, New Orleans, Louisiana, who is Chairman of the Committee on Hotels. He and his committee will take great pleasure in seeing that comfortable accommodations are arranged for all who desire to attend the New Orleans meeting. In writing, either to the hotel or Dr. Seemann, state the kind and price of accommodations desired, the day the reservation is to become effective, and if possible give the time of day the reservation is to begin.

ROOSEVELT HOTEL, 123 Baronne St.
(General Hotel Headquarters)
Single room with bath, $3.00 to $5.00
Double room with bath, $5.00 and $6.00
Double room, twin beds, with bath, $7.00 and $8.00

JUNG HOTEL, 1500 Canal St.
(Hotel Headquarters for The American Society of Tropical Medicine and the Southern Association of Anesthetists)
Single room with bath, $3.00 and $3.50
Double room with bath, $5.00 and $6.00

ST. CHARLES HOTEL, 211 St. Charles St.
Single room with bath, $3.00 to $5.00
Double room with bath, $5.00 to $7.00
Double room, twin beds, with bath, $6.00 and $7.00
Single room without bath, $2.00 and $2.50

MONTELEONE HOTEL, 216 Royal St.
Single room with bath, $3.00 and $3.50
Double room with bath, $5.00 and $6.00

DE SOTO HOTEL, 420 Baronne St.
Single room with bath, $3.00 and $4.00.
Double room with bath, $5.00
Double room, twin beds, with bath, $5.00
Single room without bath, $2.00
Double room, twin beds, without bath, $3.50
Suites $8.00 to $18.00.

MARBERC HOTEL, 1300 Canal St.
Single room with bath, $3.00 and $3.50
Double room with bath, $4.00 to $5.00
Double room, twin beds, with bath, $5.00 and $6.00

PONTCHARTRAIN APARTMENT HOTEL
St. Charles Avenue and Josephine St.
Singe room with bath, $3.00 and up
Double room with bath, $5.00 and up
Suites, $10.00 and up

BIENVILLE HOTEL, Lee Circle
Single room with bath, $3.00
Double room with bath, $5.00
Double room, twin beds, with bath, $6.00
Single room without bath, $1.50
Double room without bath, $2.50

CHALMETTE HOTEL, 808 Carondelet St.
Single room with bath, $2.00 and $2.50
Double room with bath, $3.00 and $3.50
Single room without bath, $1.50
Double room without bath, $2.50
Double room, twin beds, with bath, $4.00

LA SALLE HOTEL, Canal St.
Single room without bath, $2.00
Double room without bath, $3.00
Single room with bath, $3.00
Double room with bath, $4.00
Double room, twin beds, with bath, $4.50
Double room, twin beds, without bath, $3.50

Book Reviews

An Introduction to Gynecology. By C. Jeff Miller, M.D., Professor of Gynecology, Tulane University School of Medicine; Chief of the Department of Gynecology of Touro Infirmary; Senior Visiting Surgeon, Charity Hospital, New Orleans. 327 pages with illustrations. St. Louis: C. V. Mosby Company, 1931. Cloth, $5.00.

One of the leading gynecologists of the South has surveyed the subject of gynecology for a sixteen week series of addresses to junior medical students. This is not strictly a volume for the practitioner, though he

will find it of interest. Therapeutics is omitted entirely from the subject matter. Anatomy and physiology, endocrin relations, gonorrhea and other inflammations and injuries of the female genital tract, malposition of the uterus and new growths are discussed. The best standard methods of examination and diagnosis are given, with selected reproductions of illustrations from other texts.

The modern classification of uterine and ectopic tumors, chocolate cysts and numerous other growths of endometrial structure as endometriosis is fully described.

The type is excellent and the material is presented clearly and more briefly than in the usual text book. There are no cumbersome or involved sentences or ideas. It will most adequately serve the purpose for which it was written.

The Renal Lesion in Bright's Disease. By Thomas Addis, Professor of Medicine, Stanford University, and Jean Oliver, Professor of Pathology, Long Island College of Medicine; Formerly Professor of Pathology, Stanford University. 628 pages with 170 full-page plates, 2 in color, 21 text illustrations and one folding table. New York: Paul B. Hoeber, Inc., 1931. Cloth, $16.00.

This book is a clinical and pathological presentation of Bright's disease. The section on clinical methods corrects many errors to which the physician has become accustomed. Attention is called to the fact that limits of normal of blood chemistry are more often a hindrance than a help to the physician.

Terms are defined and a new practical classification of the disease is offered. Cases illustrating each form of Bright's disease are presented. The sequence and theory of Bright's disease are discussed. Methods of examination not already in use by the medical profession are described in detail.

The book is well illustrated and the text clearly printed on good paper.

International Studies on Private and Official Practice of Medicine. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. 248 pages with tables and charts. Baltimore: The Williams & Wilkins Company, 1931. Cloth, $4.00.

This volume is the first of a series of four books which will give the data collected by Sir Arthur in his investigation of medical practice in Europe. The present volume is the result of studies in the Netherlands, Scandinavia, Germany, Austria, and Switzerland. These studies are financed by the Milbank Memorial Fund. The opinions expressed are the author's and not those of its Director.

Sir Arthur is one of the world's outstanding sanitarians. Many problems in common were found in all the countries investigated and their solution was no better accomplished in one than the other.

After reading the first volume of this series one looks for the additional numbers and the concluding volume with interest, for most of the local American problems, including the relation of the private physician and state medicine, are being threshed out in Europe.

Nutrition and Diet in Health and Disease. By James S. McLester, M.D., Professor of Medicine at the University of Alabama, Birmingham. Second Edition. 891 pages. Philadelphia: W. B. Saunders Company, 1931. Cloth, $8.50.

This second edition of a book that was first published in 1927 comes now revised, enlarged, and with new sections on the toxemias of pregnancy, food poisoning, irritable colon and protozoan infections. The sections on the enzymes, protein requirement, epilepsy, and diseases of the blood have been rewritten. The format is attractive, the printing easy for the eye, and the arrangement, references, and style pleasing. Altogether it is a good and roomy book.

The author has had an unusual training in chemistry both in this country and in Germany. He has also had a large and varied clinical experience. He brings to bear upon his subject, therefore, both chemistry and clinical medicine. The book covers both the science of nutrition and the art of feeding in health and disease. It contains the principles of the one and the diet lists of the other. The sentences are short and direct, more meaty than fibrous, and choice vitamins are found in his discussions. His conclusions are safe and sane, and he clearly avoids the fads and questionable excursions that have often involved this very scientific field. The section on the egg is charming. One would wish the new section on the toxemias of pregnancy were longer, the subject is so important. The chemical facts throughout are given clinical interpretation. The clinician will find many valuable hints and aids in giving diets to the patient. For example, the non-residue diet on page 621 and the upbuilding diet on page 481 are good illustrations.

The book will be appreciated by the ever-increasing number of recent and well trained graduates as they face the dietary problems of a well conducted practice. Particularly are the readers of the SOUTHERN MEDICAL JOURNAL appreciative of this contribution from the pen of this well known Southern physician.

American Public Health Association Year Book (1930-1931). 320 pages. New York: American Public Health Association, 1931. Price, $3.00.

This book brings into one volume a complete report of all committees at each annual meeting, a complete roster of members and fellows, officers and affiliated societies and transactions of governing bodies and other useful and valuable information pertaining to the American Public Health Association.

The following committee chairmen report in the first edition: Sally Lucus Jean, C. C. Young, C. E. A. Winslow, Louis I. Dublin, E. L. Bishop and A. W. Freeman, Lewis E. Jackson, V. M. Ehlers, E. L. Filby, Agnes J. Martin, Abel Wolman, Haven Emerson, E. O. Jordan, Edwin W. Kopf, John R. Baylis, Ernest Boyce, H. A. Whittaker, Joel I. Connolly, H. B. Hommon, Langdon Pearse, Eugene L. Fisk, Emery R. Hayhurst, Elizabeth B. Bricker, William B. Palmer, Albert C. Hunter, Acting Chairman, F. C. Blanck, H. C. Sherman, Walter H. Eddy, Acting Chairman.

These reports are well presented and authoritative and the book should be of service not only to members of the organization, but to other physicians interested in public health betterment.

A full list of members and fellows complete the book.

Heart Disease. By Paul Dudley White, M.D., Instructor in Medicine, Harvard Medical School; Physician, Massachusetts General Hospital, Boston. 931 pages with tables and illustrations. New York: The Macmillan Company, 1931. Cloth, $12.00.

This book, by an international authority upon heart disease, does not follow the time-beaten paths in presenting the different subjects. Dr. White has not stressed in detail and separately anatomy, physiology, pathology, pharmacology or instrumental technic, but treats these subjects as briefly as possible in relation to each heart subject.

The first five chapters give the methods used by Dr. White himself at the Massachusetts General Hospital. The book includes many historical quotations from the earlier literature, from Marie, Hale, Auenbrugger, Corrigan, Flint, Withering, Adams, Stokes, Laennec and others important in the history of the study of heart disease.

In the discussion of diagnosis and treatment the author has called upon his own extensive experience and methods. The chapters on valvular diseases give his personal experience rather than the findings of previous writers. The chapter on pericardial disease is probably the most complete in any text book today. The part upon adhesive pericarditis is particularly good. In the section on congenital cardiac conditions he has followed the work of Abbott.

The chapter on congestive heart failure presents all of the practical methods, both historical and of today, that may be used in the handling of the cardiac cripple.

The paper, type, and whole mechanical make-up of the book are of superior quality.

This is one of the American masterpieces on heart disease which, like Osler's "Medicine," will be handed down to coming generations as one of the great contributions to American medical literature.

A Clinical Study of Addison's Disease. By Leonard G. Rowntree, M.D., and Albert M. Snell, M.D., Division of Medicine, The Mayo Clinic and The Mayo Foundation, Rochester, Minnesota. 317 pages with illustrations. Philadelphia: W. B. Saunders Company, 1931. Cloth, $4.00.

Three groups of workers have recently announced the isolation of a suprarenal hormone which aids in the control of a peculiar syndrome described by Addison seventy-five years ago, and reported by him to be due to a disease of the suprarenal glands. Since Addison's studies are thus strikingly confirmed by modern endocrinologists, and a long known and incurable disease becomes suddenly amenable to specific therapy, the time is very ripe for a clinical review of the subject.

Rowntree and Snell at The Mayo Clinic have had more opportunity for study of Addison's disease than possibly any other physicians in the world. They report quite a long series of cases, with an adequate number of autopsies. Laboratory and other examinations of the patients are full in many phases of the study; in others, for example, the blood chemical studies, they seem surprisingly incomplete. Biopsies of the pigmented portions of the skin are reported.

The value of the book is increased by the inclusion of Addison's original description of the disease, which has not previously been readily available.

The course and treatment are given in detail, with valuable statistics of the incidence of the disease, which the authors report to be about equal to that of diabetes insipidus. It is twice as frequent in males as in females. Treatment by the Muirhead method, which gave some benefit before the introduction of the cortical hormone, is described, as well as the successful treatment of a few cases with the hormone.

The volume has a high clinical and text book value for those interested in the disease or wishing to treat its victims. No outstanding new ideas are offered except that of the use of the hormone.

Collected Papers of The Mayo Clinic and The Mayo Foundation. Edited by Mrs. Maud H. Mellish-Wilson, Richard M. Hewitt, B.A., M.A., M.D., and Mildred A. Felker, B.S. Volume XXII, 1930. Published May, 1931. 1125 pages. Philadelphia: W. B. Saunders Company, 1931. Cloth, $13.00.

In the preparation of a volume upon general surgery and medical practice, the Mayo Clinic has a great advantage in its wealth of rare and common clinical conditions. Its records are complete and statistics reliable. One can think of few conditions except the acute infectious diseases of childhood which are not included in its work. A very large number of papers are summarized and abstracted in this volume.

The studies of Mann and his co-workers upon the physiology of the liver have been extended. The successful treatment of Addison's disease with the adrenal cortical extract of Swingle and Pfiffner is described, with other successful treatments of recently identified endocrin disorders. Surgical technic shows its customary steady advancement.

Clinical Laboratory Methods. By Clyde Lottridge Cummer, Ph.B., M.D., F.A.C.P., Instructor in Dermatology and Syphilology, School of Medicine, Western Reserve University; Visiting Dermatologist, Charity and St. Alexis Hospitals, Cleveland, Ohio. Third Edition, thoroughly revised. 583 pages with 173 engravings and 12 plates. Philadelphia: Lea & Febiger, 1931. Cloth, $6.75.

The volume describes in a little less than 600 pages of large print, conveniently and compactly bound, very nearly every test that is routinely employed in clinical laboratories. The first and largest portion of the book deals with examinations of the blood: it includes staining methods, serological examinations, and chemical analysis, and a brief discussion of blood diseases. Examination of the urine, stomach contents, sputum, feces, spinal fluid and other body fluids follows. Basal metabolism has a chapter to itself, as have bacteriological methods. No methods involving the use of the x-ray are given.

No questionable technics are included, and one can think of no technic of clinical importance which is omitted except the less used blood chemical determinations, such as those for calcium, the amino acids, phosphorus, potassium, or sodium. The section on blood chemistry is, on the whole, the least complete section. The volume is quite inclusive in its treatment of other methods of blood examination.

The Young Doctor Thinks Out Loud. By Julian P. Price, M.D. With a foreword by Dr. Wilburt C. Davison, Dean, Duke University Medical School. 187 pages. New York: D. Appleton & Co., 1931.

The chief factor in inducing the reviewer to read this modern treatise upon medical manners, by an unknown author, is its introduction and endorsement by Dr. Wilburt C. Davison, Dean of the new Duke University Medical School.

The young doctor in question comments briefly upon the two types of medical school in the United States. His criticism of internships is in detail and should be read by all those concerned in hospital management. He reports that the average earning of the intern is about five dollars per month, and implies that his time is valued accordingly.

The chapters on the beginning of the young doctor's career very honestly, methodically and conservatively enumerate his obstacles, and raise questions which they do not attempt to answer.

The author brings home the great time and expense of medical training, recounting facts which, although well known, are generally lightly considered by the public. The book contains few figures or statistics; but because it presents a usually neglected point of view, it could with profit be incorporated in the report of the Committee on the Cost of Medical Care.

International Studies. Private and Official Practice of Medicine. The Prevention of Disease. By Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P. Volume Two. 249 pages. Baltimore: Williams & Wilkins Company, 1931.

This is the second contribution of the investigation of Sir Arthur relative to the status of private and official practice of medicine with special regard to the prevention of disease. The following countries are included in this survey: Belgium, France, Italy, Jugo Slavia, Hungary, Poland, and Czecho-Slovakia. Every phase of medical practice is presented with a complete but brief analysis of the terrestial, political and economic status of the country from which the data are collected. This study is financed by The Milbank Memorial Fund.

Communicable Disease Control. Report of the Committee on Communicable Disease Control. George H. Bigelow, M.D., Chairman. White House Conference on Child Health and Protection. New York: The Century Company, 1931. Cloth, $2.25.

This is one of the reports of the White House Conference on Child Health and Protection. The present volume is the report of Committee B, Communicable Disease Control, of which George H. Bigelow, State Commissioner of Health, Boston, Massachusetts, is Chairman. Of Section 11, Public Health Service and Administration, Hugh S. Cumming, Surgeon General of the United States Public Health Service, is Chairman. The subject is presented under the following headings: Factors in Control; Prevalence Among Children; Death Among Children; Diseases by Age Groups; General Findings in a Few Sickness Surveys; General Trend of Morbidity and Mortality; Proceedings Recommended for Control of Individual Diseases; Summary of Findings; Recommendations. The appendix records recent state legislation relative to diseases of childhood. Extensive tables and statistical data are included in the text. The section on procedures for control of individual diseases is complete and gives information valuable for all physicians.

The Cardiac Cycle. By Harrington Sainsbury, O.B.E., M.D., F.R.C.P., Consulting Physician to the Royal Free Hospital, the Victoria Park Hospital for Diseases of the Chest, and the Royal National Hospital, Ventnor. 79 pages. New York: William Wood & Co., 1931. Cloth, $1.75.

This book consists essentially of a discussion of the physics and mechanics of the heart beat. The author does not accept the current idea that the pulse wave is due to the expulsion of blood from the left ventricle into the aorta, but believes that the pulse precedes this part of the cardiac cycle and is caused by the spread from the aortic valves to the column of blood in the aorta, of the sudden increase in pressure in the ventricle, which occurs during the presphygmic period of the ventricular contraction. According to this hypothesis, the pulse wave is not related to the propagation of blood through the arteries and serves no useful purpose in regard to the circulation of blood. The latter function, according to the author, depends entirely on the elastic recoil of the aorta after its distension by the systolic ejection. However, the author advances the interesting idea that the pulse wave does serve a useful purpose in that it aids the flow of lymph. He does not believe that the general muscular movements of the body and the respiratory movements are in themselves a sufficient cause for the lymph flow, and thinks that the mechanical effect of the pulse wave on the perivascular lymph channels is an important factor in this regard. Since the lymph vessels are provided with valves, the effect of pressure can only be to drive the lymph toward the thoracic duct. Unfortunately the author supports his hypothesis by analogy and by argument but not by experiment.

Clio Medica, Physiology. By John F. Fulton, Ph.D., M.D., Sterling Professor of Physiology, Yale University. New York: Paul B. Hoeber, Inc., 1931.

This excellent little book is the fifth of a series of primers on the history of medicine. Dr. E. B. Krumbhaar is editor of the series.

The chief value of the work lies in the systematic presentation of the development of the "mother of biological sciences" (physiology), following the lines of physiological discovery rather than sticking to the chronological order. Another admirable quality of the book is its coat pocket size. It is attractively written. The plan follows three main themes: the circulation, digestion, and respiration. Enough details are given to make it interesting and inspiring to the medical student. The development is brought up to the present time in its story of the very latest discoveries of physiology. Medical students and teachers in medical schools, as well as physicians, will use these primers more and more as they appear, if the present high standard is preserved in forthcoming volumes.

Injuries and Sport. A General Guide for the Practitioner. By C. B. Heald, C.B.E., M.A., M.D. (Cantab.), M.R.C.P. (Lond.), Physician, with Charge of Electrotherapeutic Department, Royal Free Hospital; Physician to the British Red Cross Clinic for Rheumatism; Consulting Physician in Electrotherapy, Royal Air Force. 543 pages with illustrations. New York: The Oxford University Press, 1931. Cloth, $8.00.

As one turns back the cover two figures meet the eye. The one is an index for fractures and dislocations, the other for soft tissue injuries. The right side of the figure has appended to it, in the region of the injury, the page number on which the diagnosis is elucidated, the left side gives the pages on which treatment may be found. No quicker method or better index could have been found than these clever figures.

Part one covers repair, diagnosis, principles of splinting, electro and physical therapeutics, and complications. Diagnosis is described in utmost detail, the history, site of pain and both clinical and roentgen examinations. The various appliances and forms of splinting material are taken up. The chapters on physiotherapy are especially full, the Bristow coil being used in most cases.

The second part describes injuries to specific parts of the body. First, general consideration is given to the type of injury possible in that location, then the inspection, examination fixation in case of fractures, the different forms of physiotherapy of benefit, and finally the period of disability to be expected, along with the possible complications. The book is an excellent ready reference for the injuries which are common in everyday practice. The clarity of description and completeness is commendable.

Cancer: Its Origin, Its Development, and Its Self-Perpetuation. The Therapy of Operable and Inoperable Cancer in the Light of a Systemic Conception of Malignancy. A Research by Willy Meyer, M.D., Consulting Surgeon to the Lenox Hill and Postgraduate Hospitals, New York Infirmary for Women and Children, etc.; Emeritus Professor of Surgery, New York Postgraduate Medical School. 427 pages with illustrations. New York: Paul B. Hoeber, 1931. Cloth, $7.50.

In the past ten years, scientists have been able to agree upon no theory of a specific extraneous or systemic causation of cancer. Dr. Meyer has reviewed a large literature and given a general discussion of the predisposing causes. He ascribes an etiology for the condition, with recommendations for a specific treatment. Cancer patients, he reports, always have a mild alkalosis. He therefore recommends an acidosis producing diet, by which treatment, he says, "the patient would be slowly pulled back up the long flight of steps which in previous chapters we watched him go down." Bold words!

One of the means which he advocates of inducing acidosis is fever, and he recommends as a valuable agent for this purpose Coley's fluid. Experimental elevation of temperature by various other means is discussed.

The volume is not particularly easy reading. The author's standing as a student of cancer is such that his opinions should be carefully studied.

The Causation of Chronic Gastro-Duodenal Ulcers. A New Theory by J. Jacques Spira, M.R.C.S. (Eng.), L.R.C.P. (Lond.). With an introduction by Sir Humphrey Rollerston, Bart. G.C.V.O., K.C.B., Physician in Ordinary to H. M. The King; Regius Professor of Physic in the University of Cambridge; Sometime President of the Royal College of Physicians, London. 78 pages. New York: Oxford University Press, 1931. Cloth, $2.50.

The theory is essentially that the eating of fats is causative, and that their elimination from the diet is curative. This is of course in contradiction to the usual custom in America of giving the ulcer patient a diet high in fats, such as cream or olive oil. The evidence offered is worthy at least of examination.

Diagnostic Methods and Interpretations in Internal Medicine. By Samuel A. Loewenberg, M.D., F.A.C.P., Associate Professor of Medicine, Jefferson Medical College, Philadelphia. 1032 pages with 547 illustrations, some in colors. Philadelphia: F. A. Davis Company, 1931. Cloth, $10.00.

Chapter 1 of this volume, on history taking, examination and laboratory investigation, describes the general methods of examining a case and the uses and limitations of laboratory data. The chapters on the skin and mucous membranes, head, face, eyes, nose, mouth and neck give the necessary information sufficiently and adequately. Examination and diseases of the cardiovascular system are given in detail. Diseases of the pericardium, myocardium and endocardium, angina pectoris and the blood vessels are considered.

The International Medical Annual. Edited by Carey F. Coombs, M.D., F.R.C.P., and A. Rendle Short, M.D., B.S., B.Sc., F.R.C.S. 551 pages with illustrations, some in color. New York: William Wood & Co., 1931. Cloth, $6.00.

This book gives a summary of the more important contributions made in all fields of medicine. The editorial staff consists of outstanding British physicians, and where their opinions differ from the deductions of the paper abstracted, notes are appended.

The medical literature of the world is impartially reviewed.

Illustrations are plentifully distributed in the text and are well selected.

Easier Motherhood. By Constance L. Todd. A Discussion of the Abolition of Needless Pain. 199 pages. New York: The John Day Company, 1931.

A lay woman addresses women in general upon the value of colonic analgesia in obstetrics. Although a number of good medical papers are quoted, the author shows no general information upon either medicine or anesthesia, only a personal enthusiasm for a method to which her attention has by chance been attracted. The book can have no useful effect.

Streptococcic Blood Stream Infections. By George E. Rockwell, M.A., M.D., Associate Professor of Bacteriology, College of Medicine, University of Cincinnati; Member of Senior Medical Staff, Bethesda Hospital; Assistant Director of Bacteriological Service, General Hospital of Cincinnati. 73 pages with tables and charts. New York: The Macmillan Company, 1931. Cloth, $1.75.

The author discusses the salient points of blood stream infection with streptococci which may prove of practical use to the clinician. In chapters on infection, resistance, streptococci, the patient, the diagnosis, blood culture, treatment, elementary facts are given for the practitioner. The author appears to be over optimistic relative to the use of anti-streptococcic serum, but he stresses the importance of using other therapeutic methods as well. He feels that the use of mercurochrome, gentian violet and sodium ricinoleate are without proven benefit, the appendix of the book being devoted to this subject.

Practical Vertebrate Morphology. By J. T. Saunders and S. M. Manton. 220 pages with illustrations. New York: The Oxford University Press, 1931. Cloth, $5.00.

The book is intended to provide the student with an accurate description of the anatomy of certain types of vertebrates which are used in an elementary course of zoology as dissecting material. The illustrations are from drawings made by Dr. Manton of actual dissected specimens and only details that can be seen by ordinary methods of dissection are noted.

The electrocardiograph is discussed in an elementary manner. The use of the polygraph and sphygmograph is described. Tests for cardiac capacity are discussed. To the chapter on diseases of the blood, sickle cell anemia, von Jackson's anemia and agranulocytic angina have been added.

This will continue to be a popular and useful book.

Southern Medical News

ALABAMA

The Chilton County Medical Society were guests of Dr. V. J. Gragg, Clanton, at a recent meeting.

Houston County has been holding a series of chest clinics for the examination of tuberculosis cases and contacts.

The Houston County Medical Society gave a luncheon in honor of Dr. S. B. McPheeters and Dr. P. W. Auston, Montgomery, chest clinicians of the State Department of Health.

The Lamar County Medical Society met recently at Fernbank, with Dr. G. S. Barksdale, Fernbank, President, presiding.

Dr. J. R. Lavender, Millport, is a newly elected member of the Lamar County Medical Society.

The Lee County Medical Society had an interesting meeting recently at the Animal Husbandry and Dairy Building of Auburn.

Dr. Toulmin Gaines and Dr. D. T. McCall, both of Mobile, recently gave addresses before the Monroe County Medical Society.

Dr. James R. Garber, Birmingham, recently addressed the Talladega County Medical Society.

Dr. Arturo Rosenblueth, Mexico City, Mexico, and Miss Virginia Thompson, Portland, Oregon, were married in Birmingham September 5. Following the wedding they left for Boston to resume their studies, Dr. Rosenblueth his post-graduate research work at Harvard and Miss Thompson her Ph.D. work at Radcliff College.

Dr. L. S. Nichols, Geneva, and Miss Vona Jones were married in June.

Deaths

Dr. Thomas Warburton Jones, Camden, aged 62, died July 17 of cerebral thrombosis.

Dr. T. Z. Canterberry, Bessemer, aged 44, died July 22 of pneumonia.

Dr. Olney Walker Clayton, Fort Payne, aged 56, died April 20 of pneumonia.

Dr. Erskine Grier Donald, Pine Apple, aged 57, died July 1 of cerebral hemorrhage.

ARKANSAS

Dr. S. F. Hoge, Little Rock, recently moved his office and laboratory into the Gann Building.

Dr. W. R. Card, Heth, has moved to Mississippi, where he will continue his practice.

The Independence County Medical Society met in Batesville in August and preceded their business session by a supper at one of the hotels.

Dr. Vernon Tarver, formerly of Huttig, has moved to Star City.

Dr. James M. Kolb has moved from Little Rock to Clarksville to become associated with his father, Dr. J. S. Kolb, in practice.

The Leo N. Levi Memorial Hospital and the Charles Steinberg Clinic staffs are holding a clinical conference the first of October in Hot Springs.

Deaths

Dr. J. R. Cunning, Lonoke, aged 70, died July 18.

DISTRICT OF COLUMBIA

Dr. William Gerry Morgan, Washington, was recently unanimously elected Dean of Georgetown University School of Medicine, succeeding Dr. John A. Foote, deceased. Dr. Morgan is a Regent of the University and has been Professor of Gastro-Enterology in the School of Medicine for many years.

The District of Columbia Medical Society recently received a sum of money through the will of the late Dr. George M. Kober, the income from which will be used for needy and infirm physicians.

The Georgetown University School of Medicine received a bequest by the will of Dr. George M. Kober, for many years Dean of the School, to be used for a student loan fund.

Dr. William C. Borden has resigned as Dean of George Washington University School of Medicine, and will be succeeded by Dr. Earl Baldwin McKinley, formerly of the School of Tropical Medicine of the University of Porto Rico.

Dr. Max J. Weinstein, Washington, and Miss Esther Messing were married in August.

Deaths

Dr. Harry R. Hermesch, Washington, aged 53, died July 4 in California.

Dr. Mercer B. Croll, Washington, aged 76, died June 25.

FLORIDA

Dr. William M. Rowlett, Tampa, is spending some time in New York and Boston visiting clinics.

Dr. Lewis W. Glatzau has moved from Jacksonville to DeLand.

Dr. D. Ward White, Miami Beach, has gone to New York for some post-graduate study.

Dr. Alan Brown, Jacksonville, has opened offices in the St. James Building, where he will limit his practice to dermatology and syphilology.

Dr. Grace E. Papot, West Palm Beach, has moved her offices from the Comeau Building to the Harvey Building.

Dr. J. Ralston Wells, Daytona Beach, has been elected to Senior Fellowship in the Southeastern Surgical Congress.

Dr. S. A. Shoemaker, Orlando, has been in Chicago this summer attending clinics.

Dr. A. C. Koon, Lakeland, has been doing postgraduate work in operative surgery in New York City this summer.

The Florida East Coast Medical Association will hold its annual meeting in Jacksonville the first part of October.

Dr. J. C. Davis, Quincy, was recently made President of the Chattahoochee Valley Medical and Surgical Association at a meeting in Radium Springs, Georgia.

The DeSoto-Hardee-Highlands County Medical Society has attained a 100 per cent of paid up dues for 1931.

Dr. M. Q. Burns and Dr. D. H. Finlay, Blountstown, entertained the members of the Jackson County Medical Society at a fish dinner recently, at which time a paper was read by Dr. Mark F. Boyd, of the Rockefeller Foundation, stationed at Tallahassee.

GEORGIA

Dr. William L. Moss, Athens, is the newly elected Dean of the University of Georgia Medical Department, succeeding Dr. H. W. Goodrich, resigned.

Dr. E. B. Saye has moved from Atlanta to Macon to live.

Dr. Stewart R. Brown, Royston, was recently elected President of the Eighth District Medical Society.

An agreement has been made by Emory University Medical Department with Mr. J. B. Franklin, Superintendent, Grady Hospital, allowing medical students of Emory access to the wards, and teaching privileges, in the Grady White Unit.

Dr. T. H. Johnston, Athens, has resigned as Commissioner of Health of Athens and Clarke County to take up work in Michigan.

Dr. Thomas R. Ponton, Augusta, is the newly elected Superintendent and Professor of Hospital Administration of the University Hospital, Augusta.

The Fulton County Medical Society recently unveiled a bust of the late Dr. E. C. Thrash in the Library of the Academy of Medicine, Atlanta.

Dr. Sam A. Anderson has returned to Milledgeville to practice after doing post-graduate work at the University of Pennsylvania.

Dr. Wilborn Arthur Upchurch and Dr. Wilborn Earle Upchurch, Atlanta, have become associated and have opened offices in the Doctors Building for the practice of urology.

Dr. Allen H. Bunce, Atlanta, and Dr. Herrmann Lang, Savannah, addressed a recent meeting of the First District Medical Society.

The Georgia Hospital Association met in Atlanta recently and elected the following officers: Miss Annie Bess Feebeck, Atlanta, President; Dr. Albert F. Saunders, Valdosta, First Vice-President; Mr. Robert Hudgens, Emory University, Second Vice-President; Mr. George R. Burt, Piedmont Hospital, Atlanta, Executive Secretary; and Dr. J. C. Patterson, Patterson Hospital, Cuthbert, Dr. R. H. Oppenheimer, Wesley Memorial Hospital, Emory University, and Dr. Rhea W. Richardson, Macon Hospital, Macon, Trustees.

The Habersham County Medical Society were guests of Dr. and Mrs. O. N. Harden, Cornelia, at a recent meeting.

The Ware County Medical Society were guests of Dr. and Mrs. W. C. Hafford, Waycross, at a recent meeting.

Dr. Feltz Cleveland Davis, Macon, and Miss Loraine Eleanor Homans were married in July.

Dr. Carlton A. Fleming, Tifton, and Miss Virginia Hollingsworth were married July 12.

Dr. Robert N. Little, Summerville, and Miss Katheryn Wheeler were married July 23.

Dr. Cuthbert Ennis Powell, Swainsboro, and Miss Mary Elizabeth Chestnut were married June 15.

Deaths

Dr. A. M. Speer, Macon, aged 69, died June 24.

Dr. George Montgomery McMillan, Cordele, aged 76, died July 14.

Dr. James Henry Sessions, Homerville, aged 61, died recently.

KENTUCKY

A conference of public health workers of Kentucky, Tennessee and Missouri was held recently at Reelfoot Lake. Dr. Waller S. Leathers, Nashville, Dr. Charles P. Coogle, Memphis, Dr. William W. Johnston, Flat River, Missouri, and Dr. John L. Jones, Louisville, were speakers on the program.

The Kentucky Medical Association held its eighty-first annual session in September at the University of Kentucky. Dr. E. Starr Judd, of the Mayo Clinic, Rochester, was the guest of honor.

The Bourbon County Medical Society at a recent meeting went on record as advocating a recommendation to the School Superintendent that all school children should be given a full hour for lunch.

The Harlan County Medical Society at a recent meeting had as their guest speakers Dr. Thomas R. Barry and Dr. Richard G. Waterhouse, both of Knoxville, Tennessee.

Deaths

Dr. James Andrew Averdick, Covington, aged 78, died in August.

Dr. Winfield Scott Gilmore, Owensboro, aged 83, died July 10 of heart disease.

Dr. Moses Randall Ingram, Tinsley, aged 53, died June 26 of carcinoma.

Dr. James R. Darbro, Sanders, aged 78, died July 2 of heart disease.

LOUISIANA

The Bi-Parish Medical Society met recently in the East Louisiana State Hospital.

The new Marine Hospital at New Orleans, built at a cost of more than two million dollars, is nearing completion and will be ready for occupancy around November 1.

The Woman's Auxiliary to the Orleans Parish Medical Society at a recent meeting elected the following officers for the coming year: Mrs. S. M. Blackshear, President; Mrs. J. H. Musser, First Vice-President; Mrs. John Smythe, Second Vice-President; Mrs. P. Jord Kahle, Third Vice-President; Mrs. Isidore Cahn, Fourth Vice-President; Mrs. J. W. Warren, Recording Secretary; Mrs. S. Chaille Jameson, Treasurer; Mrs. Ernest Allgeyer, Chairman Publicity; and Mrs. F. E. LeJeune, Parliamentarian.

Dr. Leon J. Menville, New Orleans, has recently been made honorary member of the "Pi Gamma Mu," National Social Science Honor Society.

Dr. L. L. Lumsden, Medical Director stationed at New Orleans, has been sent to points in Mississippi to make studies of public health methods.

Deaths

Dr. Robert G. Douglas, Shreveport, aged 46, died July 23.

Dr. H. T. Nicholle, Baton Rouge, aged 49, died August 3 following a cerebral hemorrhage.

Dr. Lee N. Spinks, Vienna, aged 66, died April 15.

MARYLAND

Dr. Allen F. Voshell, formerly Professor of Orthopedics, University of Virginia, has accepted the Professorship of Orthopedic Surgery at the University of Maryland and College of Physicians and Surgeons, succeeding Dr. Robert W. Johnson, Jr., resigned.

Dr. H. J. Warthen, Baltimore, has been appointed Resident Surgeon at Johns Hopkins Hospital.

Dr. J. H. Janney, Rockefeller Foundation, formerly stationed at Indianola, Mississippi, has been transferred to Annapolis.

A special clinic has been opened at Hagerstown for the purpose of immunizing against typhoid fever to combat an outbreak of the fever in Washington County.

Dr. Huntington Williams, of New York, will take up his work as Director of Health of Baltimore October 1, this position being a recent addition to the City Department of Health.

Continued on page 34

The Clinical Heritage

SUMMING UP the recent work on cod liver oil in the treatment of rickets, a noted authority* describes this well known medicament as "a wonderful clinical heritage".

In his conclusion he states: "The most reliable weapon in the treatment of rickets is cod liver oil."

Other investigators, such as Barnes, Brady, James, Hess, Weinstock and Rivkin**, etc., find cod liver oil a much more satisfactory antirachitic agent than irradiated ergosterol.

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*Harris, H. A.: American Jour. Med. Sc., Vol. 181, No. 4, April 1931—page 453.
**Barnes, D. J., Brady, M. J., and James, E. M.: American Jour. Diseases of Children, Vol. 39, No. 1, Jan., 1930, page 58; and Hess, A. F., Weinstock, M., and Rivkin, H.: Proc. Soc. Exper. Biol. & Med., 27:665, April, 1930.

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Continued from page 932

Anne Arundel County is to have a model full-time health department maintained by the Rockefeller Foundation, the Johns Hopkins School of Hygiene and Public Health, the State Health Department and the County Commissioner, for the purpose of working out a program of preventive medicine and better sanitation. The work will be directed by Dr. John H. Janney, assisted by Dr. Clarence F. Moriarty.

Dr. Hugh H. Young, Professor of Urology, Johns Hopkins University, has been presented with the honorary degree of D.Sc. by the University of Belfast, Ireland.

In using lactic acid milk for infant feeding, physicians find Mead's Powdered Non-curdling Lactic Acid Milk No. 1 (containing Dextri-Maltose) the simplest and most satisfactory medium for the preparation of lactic acid milk in the home or hospital. The proper amount of carbohydrate incorporated in this product correlates the lactic acid content, so that it is always ready for use. This product never curdles. Samples and literature sent on request. Mead Johnson & Company, Evansville, Ind., U.S.A.

Deaths

Dr. William T. Riley, Baltimore, aged 60, died July 7 of heart disease.

Dr. Calvin Newton Gabriel, Baltimore, aged 65, died June 14 of pneumonia.

MISSISSIPPI

Dr. J. H. Janney, Indianola, Director of the Training Station for Health Workers maintained by the Rockefeller Foundation and the Mississippi State Board of Health, has been transferred to Maryland, and will be succeeded by Dr. Charles A. Bailey.

The Northeast Mississippi Thirteen County Medical Society met recently at Houlka.

Dr. W. R. Card has moved to Pontotoc County, coming there from Arkansas.

Dr. B. C. Tubb, Smithville, has been given a scholarship for post-graduate work at Tulane.

Dr. William G. Weston, Vicksburg Hospital, Dr. Nathan B. Lewis, Vicksburg Infirmary, and Dr. Henry Brown Goodman, Mississippi State Charity Hospital, were elected members of the Issaquena-Sharkey-Warren Counties Medical Society at a recent meeting of the Society.

The Mississippi State Board of Health in July sponsored a five-day lecture series at New Albany, which was attended by physicians from surrounding counties. The lecturer was Dr. J. R. McCord, of Emory University, Atlanta, Ga.

Dr. Brister Ware, who has just completed intern work at the Louisiana State Charity Hospital, has opened offices in Jackson, where he will practice general surgery and gynecology.

Dr. L. V. McCarthy has completed his internship at Touro and has opened offices in Jackson.

Dr. Van Dyke Hagaman has become associated with the State Charity Hospital after completing his internship in ear, nose and throat work at the Crile Clinic, Cleveland.

Dr. Henry B. Goodman, Cary, has become a member of the staff of the Mississippi State Charity Hospital, Vicksburg.

Dr. Nathan Lewis, Vicksburg, has become associated with Dr. B. B. Martin in private practice.

The Homochitto Valley Medical Society, at their meeting in October, will have as their guests members of the Tri-County and Pike County Medical Societies. Dr. Isidore Cohn, New Orleans, Dr. T. B. Sellers, New Orleans, and Dr. Alphonse H. Meyer, Memphis, will appear on the program.

Dr. J. P. Wall, Jackson, and Miss Sarah King were married July 25.

MISSOURI

Dr. James F. Elder, formely of Youngstown, will be stationed at Van Buren as Health Director of the Third District Health Unit, which was recently organized to operate in the drought-stricken area.

Kansas City has a new six-story hospital, the Menorah Hospital, recently completed at a cost of more than a million dollars. Dr. Alvin J. Lorie is President of the Staff.

The following county societies are on the honor roll for 1931, having paid dues for all their members: Mercer, Miller, Chariton, Macon, Pulaski, Dent, Mississippi, Atchison, Barry, Lafayette, Putnam and Schuyler.

The Carter-Shannon County Medical Society and Health Unit No. 3 of the State Health Department held a joint meeting recently at Van Buren. The Howell-Oregon-Texas County Medical Society was guest of the meeting.

Dr. O. F. Bradford, Kansas City, recently held a clinic at Salisbury in connection with Better Home Week for the examination of children.

The Twenty-Sixth Councilor District Medical Society met recently at Waynesville.

Five-County Group, comprised of Butler, Dunklin, New Madrid, Pemiscot and Stoddard Counties, met recently.

Dr. Paul Slater, St. Louis, with his wife, sailed recently for China as medical missionary.

Dr. Herbert S. Gasser, St. Louis, has been made Professor of Physiology of the New York Hospital-Cornell Medical College Center.

Continued on page 36

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Part V. PROGNOSIS. Which tells of what results we may expect from treatment.

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Continued from page 34

Dr. Ralph L. Thompson, Dr. William E. Leighton and Dr. Warren R. Rainey, all of St. Louis, have received the King George Medallion, awarded them for service in the Medical Corps of the British Expeditionary Forces in the World War.

Dr. G. D. Kettlekamp, St. Louis, recently held a tuberculosis clinic in connection with the annual joint meeting of the Mississippi Valley Sanatorium Association and the Mississippi Valley Conference on Tuberculosis.

Dr. Joseph W. Love, Springfield, President-Elect of the Missouri State Medical Association, is the newly elected President and Chief of the Staff of the Springfield Baptist Hospital.

Dr. Fred W. Bailey, St. Louis, is Chairman of the local committee on arrangements for the coming meeting of the American Association of Railway Surgeons at St. Louis in November.

New officers for the Woman's Auxiliary to the State Medical Society are: Mrs. U. J. Busiek, President, Mrs. David S. Long, President-Elect, Mrs. Ralph W. Holbrook, First Vice-President, Mrs. R. S. Kieffer, Second Vice-President, Mrs. H. M. Grace, Third Vice-President, Mrs. W. T. Martin, Fourth Vice-President, Mrs. F. T. H'Doubler, Corresponding Secretary, Mrs. J. A. Chenoweth, Recording Secretary, Mrs. L. S. James, Treasurer, and Mrs. J. J. Gaines, Auditor.

Mrs. A. B. McGlothlan, St. Joseph, is the newly installed President of the Woman's Auxiliary to the American Medical Association.

Mrs. M. P. Overholser, Harrisonville, has been appointed National Chairman of the Press and Publicity Committee for the Woman's Auxiliary to the American Medical Association.

Deaths

Dr. Arthur Goebel, St. Louis, aged 76, died August 3 of heart disease.

Dr. Charles W. Reagan, Macon, aged 75, died suddenly July 31.

Dr. John Philip Stein, St. Louis, aged 49, died July 9.

Dr. Harvey Edward McCarthy, Kansas City, aged 42, died May 1.

Dr. James Bunyan Eure, Poplar Bluff, aged 66, died June 12 of uremia.

Dr. William Marion Wright, St. Louis, aged 43, died July 4 from drowning.

Dr. William Preston Hill, St. Louis, aged 73, died June 24.

Dr. Herbert Leavitt Cooper, Ashburn, aged 61, died July 11 of heart disease.

Dr. Norman Bruce Carson, St. Louis, aged 86, died August 9.

Dr. George M. Moore, Eldon, aged 69, died June 28 of cerebral hemorrhage.

Dr. Jacob L. Walker, Union, aged 52, died March 16 of cerebral hemorrhage.

Dr. Silas Charles Delap, Kansas City, aged 85, died June 18.

NORTH CAROLINA

Dr. Robert W. McKay, Charlotte, is Chairman of a committee organized by the Mecklenburg County Medical Society for the purpose of operating a physicians' exchange in Charlotte.

Dr. Christopher Johnston, Durham, addressed a recent meeting of the Gaston County Medical Society at Gastonia.

Dr. Paul H. Ringer, Asheville, has moved into new offices in the Arcade Building.

Dr. Alfred R. Shands, Jr., Durham, held orthopedic clinics this summer at Rocky Mount and Goldsboro for the examination of children.

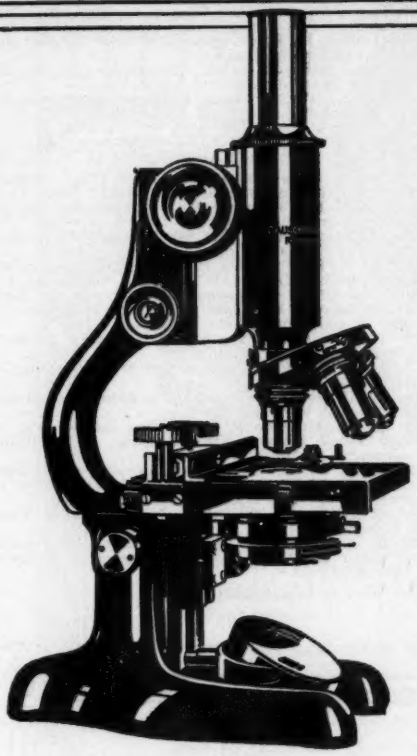
Dr. Harold L. Amoss, Durham, Professor of Medicine at Duke University, has gone to Peiping, China, where he will be Visiting Professor of Medicine at Peiping Union Medical College.

Dr. John Roy Herge, Winston-Salem, has been made Director of Activities of Forsyth, Yadkin and Stokes Counties, recently consolidated under a single unit.

Dr. Raymond Elmore Earp, Selma, and Miss Gretchen V. Schonmaker were married June 15.

Dr. Walter Brem Mayer, Charlotte, and Miss Helen Anne Dainis were married July 14.

Continued on page 38



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Continued from page 36

Deaths

Dr. Henry Percival Parr Thompson, Highlands, aged 62, died July 1 of cerebral hemorrhage.

Dr. Herbert H. Bown, Asheville, aged 66, died June 22 of cerebral hemorrhage.

Dr. John Robinson Irwin, Charlotte, aged 77, died June 28 of heart disease.

Dr. Charles Wilson Davis, Oteen, aged 38, died July 2 of tuberculosis.

OKLAHOMA

Dr. Lewis J. Moorman, Oklahoma City, Professor of Clinical Medicine, has been appointed Dean of the School of Medicine, University of Oklahoma, succeeding Dr. Leroy Long, resigned.

The Oklahoma City Clinical Society will hold its annual fall clinics November 2-5.

Dr. J. B. Smith, Durant, was recently appointed Superintendent, University Hospitals, Oklahoma City, succeeding Dr. Wann Langston, resigned. Dr. Langston will become Professor of Clinical Medicine, University of Oklahoma Medical School.

Dr. F. E. Sadler has moved to Coalgate, where he will locate.

Dr. L. B. Windham has moved from Okmulgee to Tyler, Texas.

Dr. W. C. Vernon, Okmulgee, is doing special work in surgery in Vienna.

Dr. E. Rankin Denny, Tulsa, has moved into new offices in the Medical Arts Building, and will limit his practice to internal medicine.

Dr. E. P. Davis, Oklahoma City, did some special work in diseases of the heart and circulation this summer at Michael Reese Hospital, Chicago.

Dr. E. D. Rodda, Okmulgee, is studying in Vienna and Budapest.

Dr. F. A. Harrison, Ardmore, is doing some special work under Dr. Fritz Talbot, Professor of Pediatrics at Harvard.

Continued on page 40

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Continued from page 38

Dr. Walter W. Baker, Enid, and Miss Evangeline Jones were married June 4.

Deaths

Dr. James Woodville Marshall, Shawnee, aged 65, died April 27.

Dr. William H. Rogers, Tulsa, aged 59, died June 30 of heart disease.

SOUTH CAROLINA

Dr. Robert Wilson, Charleston, has resigned as Chairman of the State Board of Health, and will be succeeded by Dr. William Egleston, Hartsville.

Dr. William Evans, Jr., Bennettsville, and Miss Norma Brabham were married July 7.

Deaths

Dr. E. W. Pressley, Clover, aged 68, died July 24 of cerebral hemorrhage.

Dr. John Lewis Copeland, Ehrhardt, aged 60, died June 12 of cerebral hemorrhage.

TENNESSEE

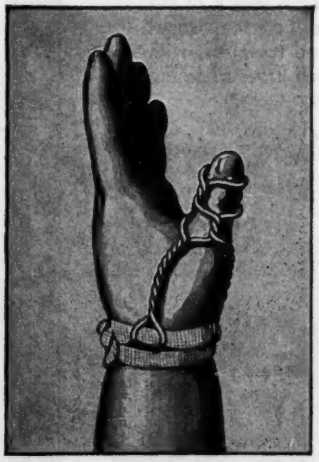
Dr. P. H. Anderson, Memphis, has opened his clinic for the treatment of skin diseases at 1778 Overton Park Avenue.

Dr. John McIntyre Nokes has resigned as Instructor in Obstetrics and Gynecology at Vanderbilt University, Nashville, to become Assistant Professor of Obstetrics and Gynecology at the University of Virginia.

Dr. Sam T. Parker, Jackson, is doing post-graduate work in eye, ear, nose and throat diseases in New York.

Dr. R. L. Newkirk has located in Tiptonville after completing his internship in the Louisville City Hospital.

Continued on page 42



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Continued from page 40

Dr. George M. Kelly has completed his internship at the Knoxville General Hospital and will locate in the Coal Creek mining section.

Dr. B. R. Roach will locate in Morristown after an internship at the Knoxville General Hospital.

Dr. J. L. Montgomery will locate in Erwin after an internship at the Knoxville General Hospital.

The Knox County Medical Society had as their guest speaker at a recent meeting in Knoxville Dr. James E. Cottrell, Philadelphia.

Dr. Jesse C. Ellington, Kingsport, has resigned his position with the State Health Department to become Healh Officer of Cristobal-Colon, Panama.

Dr. Thomas R. Ray, Shelbyville, has succeeded Dr. Robert Caldwell, deceased, as President of the Tennessee State Medical Society.

Dr. J. F. McFadden, Johnson City, has succeeded Dr. George J. Sells as City Physician.

Dr. P. A. McGinnis, Washburn, is the newly appointed Assistant Medical Director at Pressmen's Home.

Dr. James P. Moon, Tiptonville, Health Officer of Lake County, has been made President of the newly organized Mississippi Valley Public Health Workers' Association.

Dr. Benjamin F. Gates, Cleveland, and Mrs. Bonnie Sue Edmonds were married July 9.

Deaths

Dr. Robert Caldwell, Nashville, President of the Tennessee State Medical Association, aged 57, died July 26.

Dr. J. H. Pickard, Hohenwald, aged 56, died August 5.

Dr. William F. King, Jefferson City, died May 28.

Dr. Joseph B. Delozier, Sevierville, aged 70, died July 2 of cerebral hemorrhage.

Dr. Walter Roland Register, Knoxville, aged 65, died June 23.

TEXAS

Dr. L. E. Allday, Dallas, has been appointed Superintendent of the Emergency Hospital, Dallas, to succeed Dr. E. G. Lyon.

Dr. John H. Mitchell, Tyler, has opened a hospital which will be known as the Physicians and Surgeons Hospital.

Dr. William G. Phillips, Fort Worth, was on the program of a recent meeting of the Palo Pinto County Medical Society.

Dr. Charles F. Carter, Dallas, addressed a recent meeting of the Smith County Medical Society.

Dr. John O. McReynolds, Dallas, addressed the annual meeting of physicians of the Gulf Coast and Santa Fe Railway.

Dr. Samuel E. Thompson, Kerrville, was reelected President of the Southwest Texas District Medical Society at the semi-annual meeting in July.

Physicians of Dallas and Fort Worth at a joint meeting organized a Texas Chapter of the Pan American Medical Association. The following were elected officers: Dr. John O. McReynolds, Dallas, President; Dr. Leopold H. Reeves, Fort Worth, Vice-President; and Dr. Arthur H. Flickwir, Fort Worth, Secretary-Treasurer.

Dr. W. W. Ferrill, Adjunct Professor of Physiology; Dr. F. R. Thompson, Adjunct Professor of Neurology and Psychiatry; and Dr. W. W. Bondurant, Instructor in the Practice of Medicine, have been recently appointed to the Faculty of the University of Texas School of Medicine, Galveston.

The Texas State Board of Health has recently been reorganized, and a sanitarian, a pharmacist and a dentist have been added to the personnel of the Board.

Dr. T. E. Duffer has moved from Ranger to Brownwood.

Dr. F. E. Glauner has moved from McAllen to Columbus.

Dr. J. M. Pickard has recently located in Dallas to practice, coming from Tampico, Mexico.

Dr. F. R. Collard and Dr. Austin F. Leach, both of Wichita Falls, have been holding free tuberculosis clinics this summer for examination of patients who are not able to pay for services.

Dr. Manton M. Carrick, Dallas, City Health Officer

Continued on page 44

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Continued from page 42

of Dallas and former State Health Officer, has received the Distinguished Service Citation by the Disabled American Veterans.

Dr. T. J. Crowe, Dallas, has been elected President-Elect of the Federation of State Medical Boards of the United States.

Deaths

Dr. William G. Pettus, Georgetown, aged 87, died May 14.

Dr. Eugene E. Terry, Longview, aged 52, died June 8.

Dr. Isaac Newton Suttle, Corsicana, aged 73, died July 19.

Dr. James C. Carleton, Bonham, aged 65, died June 30.

Dr. Jesse Bedford Shelmire, Dallas, aged 73, died in July.

Dr. Thomas G. Bates, Lubbock, aged 65, died May 9 of cerebral hemorrhage.

Dr. D. Grant Taylor, Lake Dallas, aged 59, died March 17.

Dr. Julian D. Butler, Houston, aged 59, died July 8.

Dr. Adam J. Zielinski, Goose Creek, aged 66, died March 28 of cerebral hemorrhage.

Dr. William Horace Lancaster, Ganado, aged 82, died suddenly April 30.

Dr. F. L. Thomas, Easterly, aged 57, died June 17.

Dr. L. A. Brustad, San Antonio, aged 61, died April 20 of heart disease.

VIRGINIA

The Southwestern Virginia Medical Society held its regular semi-annual meeting at Marion in September.

Dr. Nelson Mercer, Richmond, recently was reappointed a Lieutenant-Colonel in the Medical Reserve Corps, U. S. Army.

Augusta County Medical Association met recently and elected the following officers for the ensuing year: Dr. W. C. Roller, Fort Defiance, President; Dr. T. H. Rolston, New Hope, Dr. F. P. Floyd, Waynesboro, Dr. George H. Thomas, Staunton, Vice-Presidents; Dr. W. T. Hartman, Swoope, reelected Secretary; and Dr. T. M. Parkins, Staunton, reelected Treasurer.

The annual meeting of the Virginia Pediatric Society will be held at Hotel Patrick Henry, Roanoke, early in October.

Dr. John McIntyre Nokes, recently of Nashville, Tennessee, has returned to the University of Virginia and will be Assistant Professor of Obstetrics and Gynecology.

The Clinch Valley Medical Society met recently at Gate City for its semi-annual session.

The Southside Virginia Medical Association met recently at Piedmont Sanatorium, Burkeville, for its quarterly session.

Dr. Thomas C. Lawford has opened offices in Hilton Village, where he will locate for general practice.

Dr. M. Melvin Clark has located in Richmond, where he will be associated with Dr. Thomas Wheeldon.

Continued on page 46

Classified Advertisements

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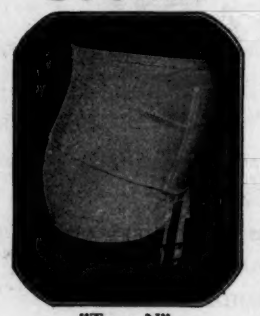

"Type N"

With long laced back and low extension upon hips: The reinforcing band attached in front at median line, also fastened in back. Hose supporters instead of thigh straps.

Takes Place of Corsets

Gives perfect uplift and is worn with comfort and satisfaction. Many variations of the "Type N" Belt provide support in Ptosis, Hernia, Obesity, Pregnancy, Sacroiliac Strain, etc.

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Katherine L. Storm, M. D.

Originator, Owner and Maker
1701 Diamond St., Philadelphia, Pa., U.S.A.

Continued from page 44

Dr. Ray A. Moore, Farmville, has been doing post-graduate work at Harvard Medical School and Hospital.

Dr. Herman F. Oppleman has located in Richmond, where he will do general practice.

Dr. Emily Gardner, Franklin, who has been doing post-graduate work in pediatrics in London, has been granted the Mary Putnam Jacobi Fellowship fund for further work abroad.

Dr. E. V. Richardson has opened offices in Glade Springs for the practice of medicine.

Dr. M. L. Anderson, Richmond, was recently reappointed a Major in the Medical Reserve Corps.

Dr. John B. McKee has located in Winchester for the practice of internal medicine.

Dr. Donald O. Hamblin has located in Lynchburg for the practice of general medicine.

Dr. Ben H. Knight has opened offices in Surry, where he will practice general medicine.

Dr. Millard P. Doyle, Norfolk, has returned from Europe, where he went as a delegate to the International Rotary Convention in Switzerland.

Dr. Barton B. McCluer has moved from Bon Air to Rockbridge Baths.

Dr. Joseph B. Graham has located in Richmond and is connected with the Department of Surgery at Memorial Hospital.

Dr. U. E. Massie has located at Fincastle, where he will practice.

Dr. Aubrey Webster Armentrout has opened offices in Winchester, where he will limit his practice to surgery and gynecology.

Prince George County has been announced as the winner of the three-year State Sanitation Campaign, with Powhatan County coming second and Hanover County third.

Dr. E. L. McQuade is the newly appointed Chief Health Officer of Charlottesville and Albemarle County, succeeding Dr. George B. Young, retired.

The Mid-Tidewater Medical Society met recently for its regular quarterly session.

Dr. Allen F. Voshell has resigned as Professor of Orthopedic Surgery, University of Virginia, to become Professor of Orthopedic Surgery at the University of Maryland and College of Physicians and Surgeons, succeeding Dr. Robert W. Johnson, Jr., resigned.

Dr. H. Cantor has opened offices in Petersburg and will practice surgery and obstetrics.

Carolyn B. Sykes, Roanoke, is the newly elected Superintendent of the Southside Community Hospital, Farmville, succeeding Lydia M. Hasse, resigned.

The Medical Society of Virginia will hold its sixty-second annual meeting at Roanoke in October.

Dr. Alexander Gordon Gilliam, Petersburg, and Miss Laura Edmondston Venning were married June 20.

Deaths

Dr. Robert L. McMurran, Portsmouth, aged 65, died suddenly June 28.

Dr. Charles F. Russell, Herndon, aged 92, died July 16.

WEST VIRGINIA

Dr. Douglas F. Love has located at Bartley for the practice of medicine.

The Monongalia County Medical Society had as their guest speaker at a recent meeting Dr. H. A. Heise, of Uniontown, Pennsylvania.

Dr. Archer A. Wilson has located in Charleston, where he will limit his practice to neurology.

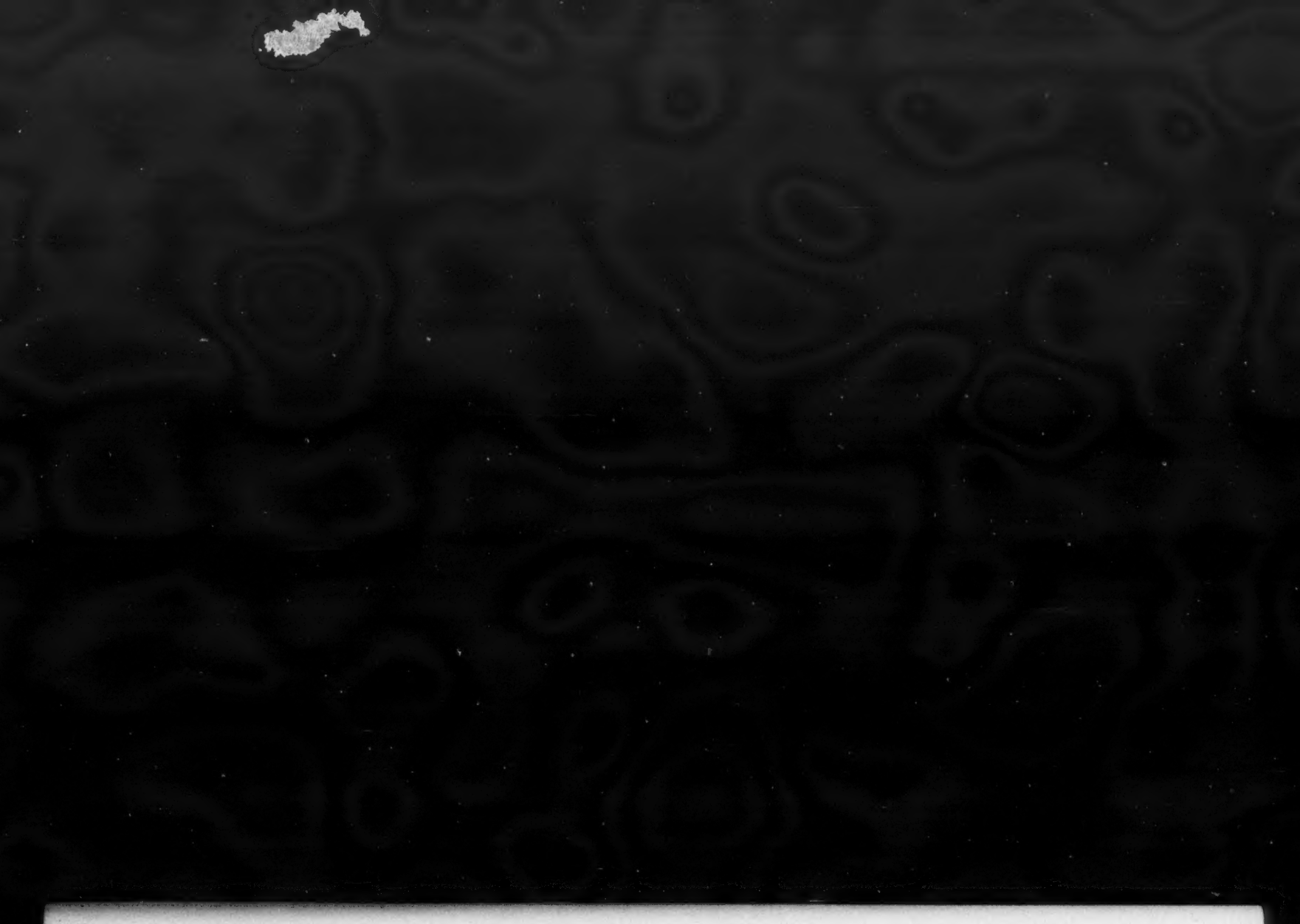
The Hospital Association of West Virginia held its annual meeting in Huntington recently.

Dr. J. Lewis Blanton has located in Fairmont for the practice of medicine.

Dr. Raymond M. Sloan and Dr. William Byrd Hunter, both of Huntington, addressed the Logan County Medical Society at a recent meeting.

Dr. Earl Bennette Henson, Charleston, was on the program of a recent meeting of the Mercer County Medical Society.

Dr. Eldon A. Amick and Dr. Grattan G. Irwin, both of Charleston, recently addressed a meeting of the Central West Virginia Medical Society.

Dr. W. T. Henshaw, Charleston, has been reappointed State Health Commissioner of West Virginia.

At the last examination held by the State Board of Medical Examiners there were twenty-two physicians licensed to practice in West Virginia.